

data (Almakyn)

4.827	1.271	1.369	1.547	1.841	1.042	2.395	3.766	1.954	0.831
4.753	2.043	4.447	2.471	0.831	0.618	2.638	0.242	0.766	1.629
0.444	2.486	3.919	2.771	1.185	2.903	3.366	2.4	1.854	2.683
2.164	2.511	4.525	3.37	2.249	2.773	4.327	3.176	1.381	5.322
5.301	1.171	4.763	0.926	3.568	1.591	5.551	3.083	1.498	3.027
1.587	2.488	0.235	1.702	5.277	1.294	0.924	4.897	3.237	5.021
3.812	4.18	2.24	1.484	3.305	2.287	2.148	4.108	2.417	1.291
1.607	2.09	1.288	2.248	1.99	3.026	1.094	3.103	3.084	4.262
2.766	1.156	2.709	1.8	2.593	0.493	1.294	3.139	0.565	1.639
1.373	1.687	4.84	1.886	2.765	3.383	2.421	1.401	2.056	4.065
1.287	1.734	1.602	1.928	2.134	2.993	1.888	4.767	3.433	0.847
1.968	4.052	2.345	2.776	3.823	2.171	2.196	2.12	2.609	4.039
1.574	2.124	1.154	0.665	3.466	2.671	0.443	2.24	1.523	3.543
1.828	1.665	1.996	3.994	2.382	4.487	2.761	1.657	0.641	3.885
3.455	3.104	2.449	0.313	0.851	1.635	1.894	3.923	1.224	3.167
1.977	1.978	1.394	0.587	1.887	0.506	3.641	3.816	1.476	0.354
2.198	5.241	2.029	2.823	2.855	2.472	0.317	4.858	1.109	1.459
1.213	1.302	1.762	3.74	1.715	0.573	3.377	1.2	3.779	5.007
2.97	2.56	2.982	2.678	2.233	1.675	2.831	1.454	5.547	3.522
1.018	2.411	2.693	2.394	4.362	1.858	3.702	0.942	0.332	3.877

p m shankar

data (Almakyn)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right) \frac{x^{b-1}}{a} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 2.7386 b = 2.7386 Weibull fit : MSE = 0.00023007

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

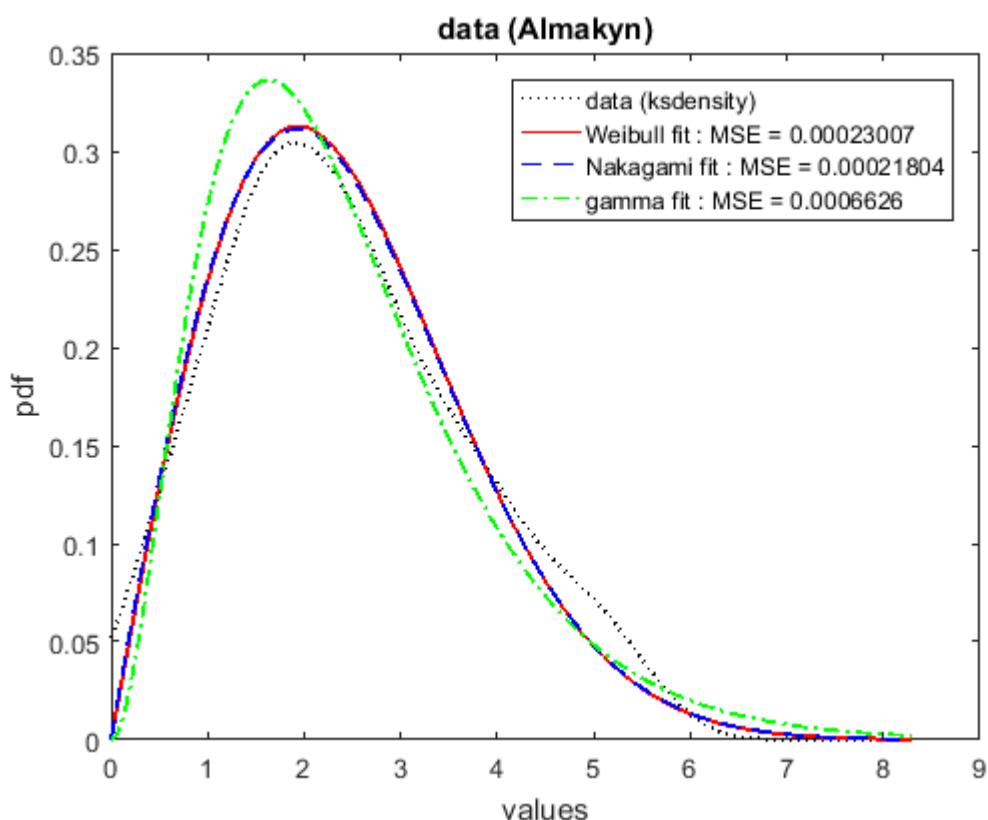
m = 0.9836 Ω = 7.5065 Nakagami fit : MSE = 0.00021804

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 3.0494 b = 0.79595 gamma fit : MSE = 0.0006626

best fit: Nakagami

p m shankar



data (Anderson R)

-3 -2.353 -2.706 -0.873 -3.582 -2.646 -3.8 -0.417 -1.892 -2.127
 -1.756 -3.099 0.957 -1.989 -1.818 -3.886 -2.801 -0.988 -3.139 -2.119
 -2.954 -3.565 -0.556 -5.439 1.965 -0.999 -0.387 -1.153 -0.811 -0.864
 0.235 0.659 1.387 -2.809 -0.188 -4.94 -2.579 -1.155 1.298 -2.308
 0.765 0.142 -3.664 -1.371 -1.131 -0.73 1.98 -0.46 -2.251 1.826
 0.65 3.806 -1.185 0.544 -2.773 -1.417 -0.702 0.065 -0.869 -1.597
 -2.702 -3.635 -1.904 -2.864 -1.016 -0.894 -1.607 1.169 -0.178 -0.978
 -0.669 -3.497 -2.725 -1.065 -0.81 0.13 0.783 0.034 -0.432 -3.216
 1.04 -1.216 -0.043 -1.302 2.156 -3.307 -3.118 -3.948 -2.522 -0.732
 -0.826 0.222 -0.24 -2.485 2.426 -1.451 -1.834 4.051 2.734 0.646
 1.446 -1.77 -1.476 2.084 2.134 0.519 -2.166 3.426 -1.665 0.226
 -1.987 -2.449 -0.064 -0.567 1.14 -0.936 -3.859 -1.972 -0.046 3.968
 -0.965 0.742 2.318 -0.089 0.187 -0.691 -0.325 -2.253 -0.537 -1.58
 -1.588 -3.177 -3.267 -0.517 -1.419 -1.835 -1.872 -4.796 0.345 0.633
 0.084 -0.601 0.916 -0.435 2.288 -2.197 -0.407 0.52 -1.65 -1.532
 -2.487 -1.22 2.948 -2.487 2.962 2.761 -0.375 -1.411 3.275 0.146
 -2.118 2.961 1.422 -2.046 0.329 0.749 -4.639 -0.064 0.03 0.573
 0.927 -1.126 -3.819 -2.633 -1.058 -0.908 0.947 -5.105 -2.227 1.121
 -5.38 -0.627 -0.231 2.636 -2.287 -2.784 1.12 0.064 -0.763 -0.454
 -2.391 -0.049 0.928 -1.34 0.705 -2.643 0.91 -2.03 -0.138 -0.347

p m shankar

data (Anderson R)

Data set contains -ve values

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

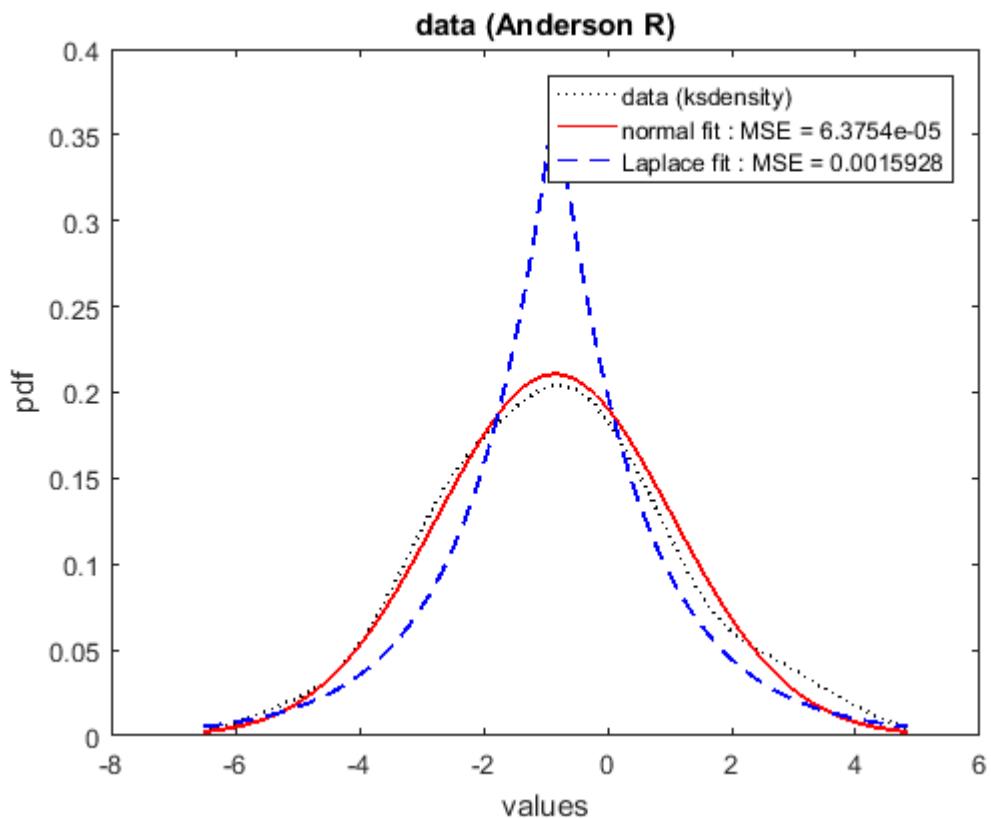
$\mu = -0.84393$ $\sigma = 1.8939$ normal fit : MSE = 6.3754e-05

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

$a = -0.84393$ $b = 1.3392$ Laplace fit : MSE = 0.0015928

best fit: normal

p m shankar



data (Anderson W)

2.902	2.264	1.967	1.965	1.819	4.047	1.936	1.132	1.015	3.54
2.732	1.925	3.854	0.704	3.374	2.214	1.121	1.821	1.572	2.182
3.832	1.382	0.618	3.017	3.011	1.892	3.251	0.546	4.041	1.919
2.784	3.026	2.476	0.505	5.541	2.728	2.468	3.36	3.885	3.295
1.815	3.768	1.99	5.326	3.576	2.325	2.209	3.171	0.423	1.955
0.831	3.087	1.946	1.543	1.83	0.638	2.189	2.631	2.488	3.456
2.371	3.026	3.307	1.993	2.833	2.931	2.917	0.363	1.154	2.672
2.772	0.772	2.105	2.651	2.127	1.274	1.581	1.503	2.755	4.135
2.617	2.948	2.074	1.461	3.124	4.062	1.067	1.281	2.143	1.105
0.795	3.602	3.654	3.847	3.867	3.352	2.305	2.462	1.686	0.63
1.669	3.568	2.705	4.957	2.906	5.008	0.209	0.734	4.592	0.336
0.232	2.816	3.461	5.197	1.443	3.084	2.555	0.372	2.912	1.947
2.492	1.508	2.226	1.671	2.73	2.037	3.421	2.996	2.436	0.784
3.195	5.575	1.537	3.832	5.547	1.881	3.471	3.595	4.608	2.18
3.435	2.537	2.984	2.041	3.309	2.001	1.589	0.934	2.962	1.525
4.068	3.085	3.586	2.137	0.544	4.615	2.046	1.68	2.03	1.147
3.015	1.898	2.714	1.254	1.984	0.856	3.648	1.266	4.221	2.878
3.29	2.908	3.143	0.6	0.581	2.492	1.322	1.871	1.043	3.791
1.873	2.335	3.653	4.891	3.019	1.189	3.242	0.9	0.711	3.04
2.288	1.683	4.972	5.315	3.476	3.027	2.73	4.006	1.993	3.652

p m shankar

data (Anderson W)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right) \frac{x^{b-1}}{a} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 2.8043 b = 2.8043 Weibull fit : MSE = 0.00052836

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

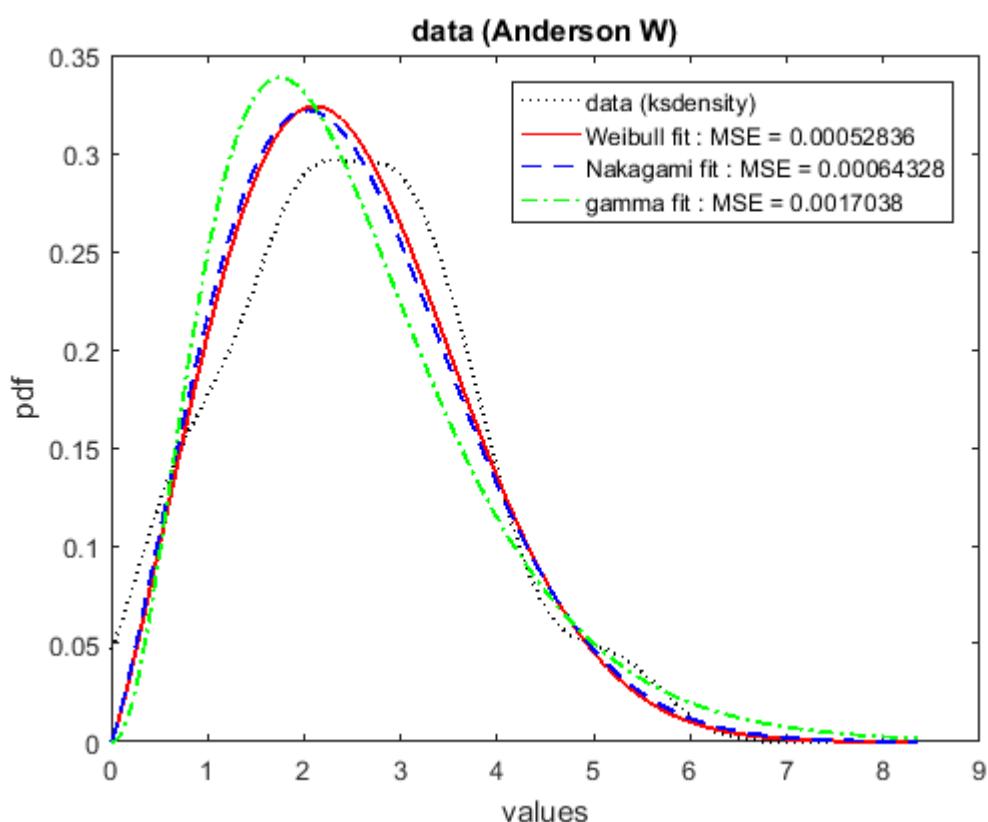
m = 1.0956 Ω = 7.629 Nakagami fit : MSE = 0.00064328

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 3.3568 b = 0.74124 gamma fit : MSE = 0.0017038

best fit: Weibull

p m shankar



data (Andiario)

-1.432 -2.115 -2.013 -0.617 -2.307 -1.793 -6.729 -1.86 -1.239 -2.07
 0.189 2.743 0.403 -0.767 0.001 -2 -2.697 0.187 -3.967 0.65
 0.902 -1.936 0.414 0.149 0.042 -1.848 -4.905 0.548 1.515 -3.669
 0.338 -3.052 0.958 -0.908 -0.708 -1.166 -1.058 0.58 -0.332 -0.568
 1.344 -1.113 1.379 1.152 -1.934 -3.015 -1.838 0.34 -2.292 -1.821
 -1.52 -0.401 -3.591 -2.684 -1.008 -1.299 -1.536 -1.076 -0.055 -0.937
 1.175 -2.322 -1.177 0.96 -2.003 -0.452 -0.143 -0.973 -0.595 -0.727
 -2.763 -1.037 -3.748 -4.618 2.738 -2.09 1.018 2.206 -3.073 -1.704
 -2.039 -0.612 -1.705 0.326 0.085 2.853 -3.09 -1.189 -2.154 -0.678
 2.343 -2.583 -2.057 1.406 -3.235 -2.898 -2.941 1.908 -0.402 1.648
 -1.699 -1.78 2.901 -2.316 -4.626 -2.27 -5.365 -0.722 -4.951 -0.734
 -3.096 1.725 -1.806 -2.822 -3.493 -3.705 3.06 3.226 -1.851 -0.099
 -0.53 -1.497 0.446 -1.959 -2.684 1.893 1.539 -1.211 -1.884 1.022
 0.753 -0.497 1.782 -1.785 -0.488 -1.614 -1.276 0.425 -2.377 -2.705
 -2.232 -5.101 -1.024 -4.304 -5.894 -0.427 -3.733 -2.129 -3.747 3.219
 -0.676 0.247 -1.73 -1.274 -0.786 -3.294 -5.655 -0.79 2.004 1.862
 -1.001 -2.52 -0.584 -0.728 -1.191 -5.559 -0.517 -2.314 -4.438 -1.379
 -3.693 0.737 0.546 -0.508 -1.722 0.513 -1.713 -4.976 -3.272 -1.344
 0.662 -0.804 1.72 -1.668 -0.714 -0.672 -0.393 1.311 -5.01 2.613
 -4.413 -1.277 1.687 -1.218 -1.302 0.038 0.438 -4.577 -0.738 0.359

p m shankar

data (Andiario)

Data set contains -ve values

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

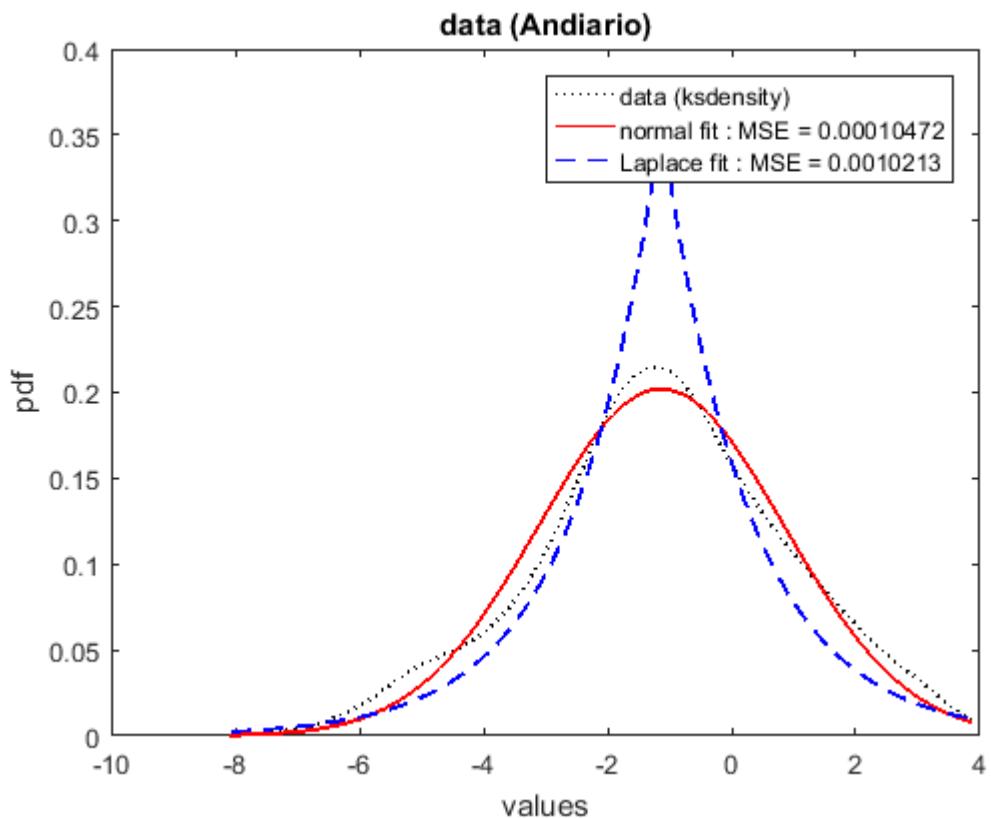
$\mu = -1.1327$ $\sigma = 1.9754$ normal fit : MSE = 0.00010472

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

$a = -1.1327$ $b = 1.3968$ Laplace fit : MSE = 0.0010213

best fit: normal

p m shankar



data (Balaji)

4.479	3.113	2.236	4.277	2.577	2.891	1.559	2.692	1.307	2.454
1.584	3.673	5.065	2.654	4.02	1.444	5.402	2.324	1.369	3.612
3.625	2.044	1.37	2.076	2.165	1.719	2.795	1.668	4.1	5.12
5.723	5.358	3.232	2.713	0.091	3.667	2.345	0.382	1.268	7.418
3.451	1.372	3.306	2.039	3.297	2.393	1.547	1.344	1.129	2.976
1.798	1.574	3.559	1.098	4.897	3.57	1.128	0.395	2.636	1.585
2.818	0.506	1.158	1.429	4.147	0.658	3.375	1.938	2.708	1.538
1.772	2.607	2.831	3.695	2.453	6.04	0.661	2.85	2.916	1.592
2.542	4.165	2.246	2.595	2.862	2.425	4.52	0.829	2.92	1.454
1.353	5.775	0.985	4.181	4.017	3.219	2.533	2.543	4.209	3.031
4.082	1.187	1.101	1.608	3.093	1.431	1.74	3.1	2.256	2.87
3.573	1.207	3.286	1.586	1.175	2.679	1.801	1.882	1.12	0.928
0.36	1.651	2.035	0.9	1.214	3.506	2.265	5.432	1.331	3.098
4.473	1.078	1.746	1.162	4.714	2.483	1.615	2.526	5.008	4.501
0.894	1.237	2.965	1.75	1.334	0.579	1.472	0.43	3.099	3.705
3.481	3.628	0.964	3.835	2.944	1.149	2.807	0.842	1.324	1.858
2.357	3.11	3.416	0.675	3.342	1.268	4.508	3.374	1.607	1.229
5.018	1.072	0.844	4.18	2.132	0.444	1.974	1.576	2.739	3.987
1.521	4.079	1.868	6.082	2.092	0.895	1.257	3.417	5.153	2.431
4.461	0.666	1.074	2.727	3.206	3.197	3.196	0.721	2.696	2.724

p m shankar

data (Balaji)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right) \frac{x^{b-1}}{a} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 2.8458 b = 2.8458 Weibull fit : MSE = 0.00017417

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

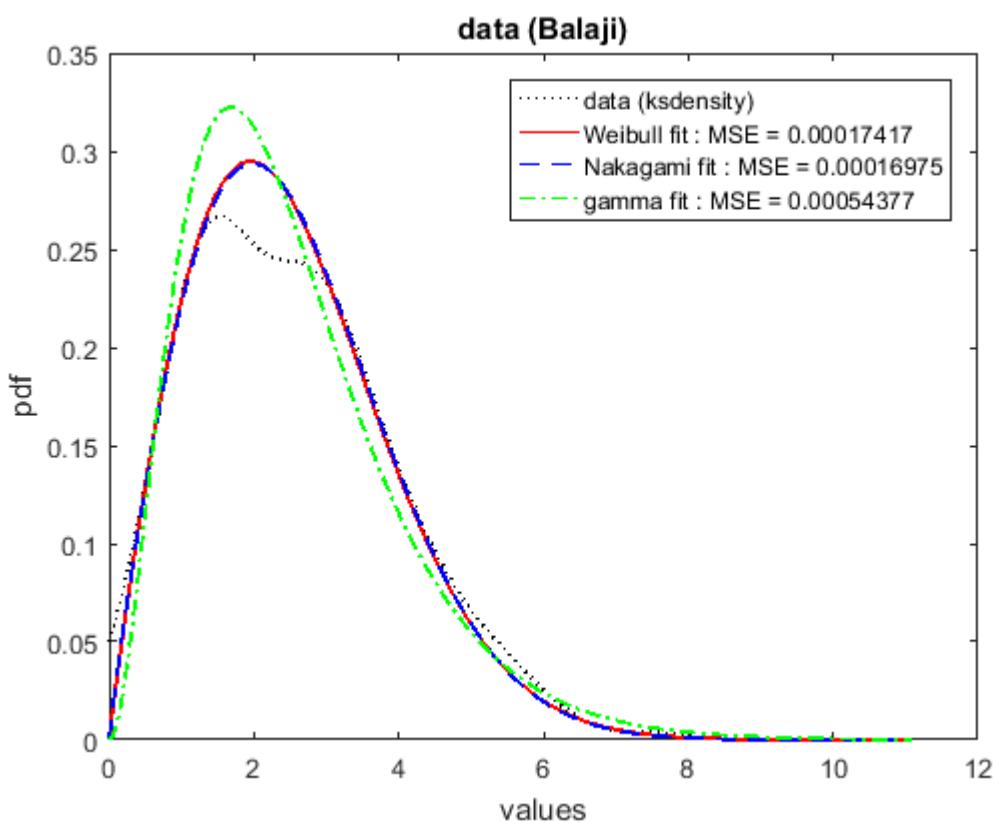
m = 0.95388 Ω = 8.2245 Nakagami fit : MSE = 0.00016975

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{a-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 3.007 b = 0.83841 gamma fit : MSE = 0.00054377

best fit: Nakagami

p m shankar



data (Basu)

2.111 -1.385 -4.598 -4.064 -4.472 0.771 -1.438 3.742 -0.421 1.029
-0.241 1.436 0.532 -5.512 -7.178 -0.157 1.055 -2.88 -2.805 -1.53
-0.315 -2.053 1.511 -1.982 -1.096 5.46 -2.355 -4.279 -1.429 -5.771
-2.673 -3.008 -2.416 0.744 0.586 -2.522 -0.892 -1.67 0.137 -5.782
-0.624 0.129 -0.056 -6.767 0.415 1.743 0.139 1.094 -2.106 -3.675
0.324 -2.699 -2.683 -0.912 -0.777 -0.584 0.429 -0.667 -1.645 -2.807
-4.458 -0.975 -0.047 0.549 -3.841 -0.468 -2.352 -1.098 -0.555 0.958
-2.636 0.353 -0.243 -3.469 -0.288 -3.083 2.2 -1.465 -2.727 -1.963
-1.36 0.092 1.309 -0.946 -2.893 -1.712 -0.92 -1.109 -0.257 -6.34
0.093 -0.811 2.758 -3.616 2.205 0.636 -0.401 -2.002 4.564 1.213
0.927 -4.189 -1.08 -0.063 -5.122 -3.727 -1.882 -1.251 -0.114 -0.47
-0.095 -1.429 -3.125 -0.286 -1.767 1.198 -0.212 -3.298 -2.575 -1.694
2.708 -0.579 -1.532 -1.042 -1.796 0.287 -1.849 -1.752 1.324 -1.443
-0.753 1.893 0.613 -2.069 -2.959 -2.054 -1.6 -4.067 -4.184 -4.06
1.078 -2.584 0.223 -2.089 3.238 -3.246 -2.113 -1.746 0.187 -1.444
2.616 -0.547 -2.83 0.657 -3.795 1.26 -1.076 -0.418 -0.622 -1.336
-0.967 -1.944 -4.495 1.086 -1.228 -2.589 -3.77 -1.109 0.592 0.752
-2.82 -2.176 -0.495 -3.243 1.534 -1.273 -2.156 -0.608 -1.425 1.76
-3.977 -0.749 0.079 -0.582 0.923 -0.068 1.384 -3.387 -0.969 -0.106
-0.052 -0.596 -0.242 -1.697 0.702 -4.783 -1.448 -0.101 -2.098 0.269

p m shankar

data (Basu)

Data set contains -ve values

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

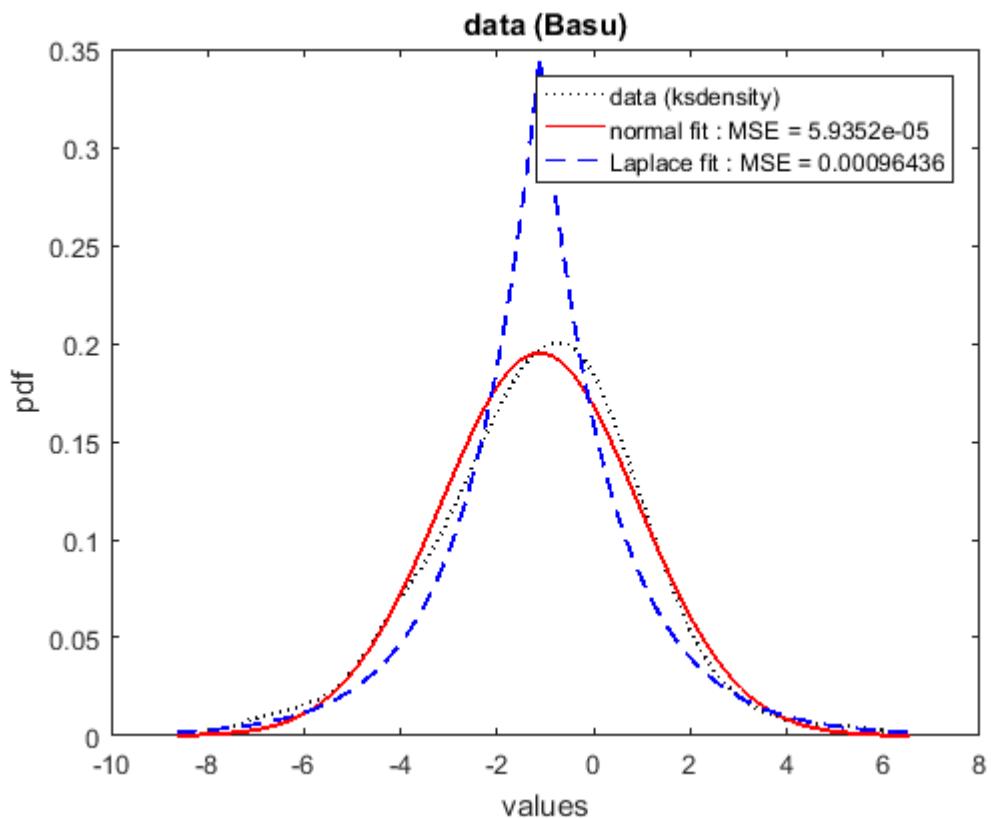
$\mu = -1.1224$ $\sigma = 2.0452$ normal fit : MSE = 5.9352e-05

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

$a = -1.1224$ $b = 1.4461$ Laplace fit : MSE = 0.00096436

best fit: normal

p m shankar



data (Buccieri)

1.195	0.386	1.639	5.47	2.859	2.433	2.134	1.368	1.789	1.145
2.948	3.667	2.547	0.458	0.54	4.556	1.939	1.877	4.269	3.13
2.641	2.909	4.264	2.948	4.531	1.901	3.09	3.904	0.643	1.669
0.677	5.599	1.354	1.441	1.028	3.51	4.092	3.314	0.941	3.483
3.369	0.822	0.635	1.233	2.179	0.913	1.583	0.962	3.252	4.816
0.44	0.709	1.521	3.129	1.544	2.358	0.323	4.263	2.068	1.439
3.543	1.643	1.948	1.177	0.785	2.009	1.72	3.544	3.614	4.606
1.413	2.15	3.597	0.396	0.72	0.802	2.547	1.094	1.735	2.662
2.963	1.152	2.932	1.357	5.495	1.222	1.458	1.2	0.948	2.194
5.884	3.971	2.181	2.337	0.18	5.693	2.706	1.351	1.09	1.676
2.655	3.099	2.858	1.956	2.3	3.892	0.337	2.544	2.063	0.915
1.503	3.491	2.822	3.471	1.342	3.722	1.627	4.254	6.13	1.521
4.709	2.67	4.84	1.581	4.132	1.85	3.502	2.464	3.094	1.031
3.797	1.754	4.785	1.912	2.588	3.783	2.638	2.161	0.977	1.853
4.098	5.645	1.378	4.616	3.556	5.205	3.55	1.452	2.735	2.131
1.218	2.227	1.289	1.217	1.69	1.688	1.329	2.695	2.007	4.896
2.032	2.53	0.847	0.936	1.457	1.694	2.267	1.206	1.179	3.099
4.585	1.342	2.759	0.398	2.68	1.911	4.057	3.038	2.146	3.326
2.699	2.366	0.985	1.958	2.009	3.668	0.451	3.167	3.28	3.896
4.168	1.108	2.151	2.982	3.786	1.289	5.016	1.899	3.9	2.096

p m shankar

data (Buccieri)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right) \frac{x^{b-1}}{a} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 2.7494 b = 2.7494 Weibull fit : MSE = 0.00023906

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

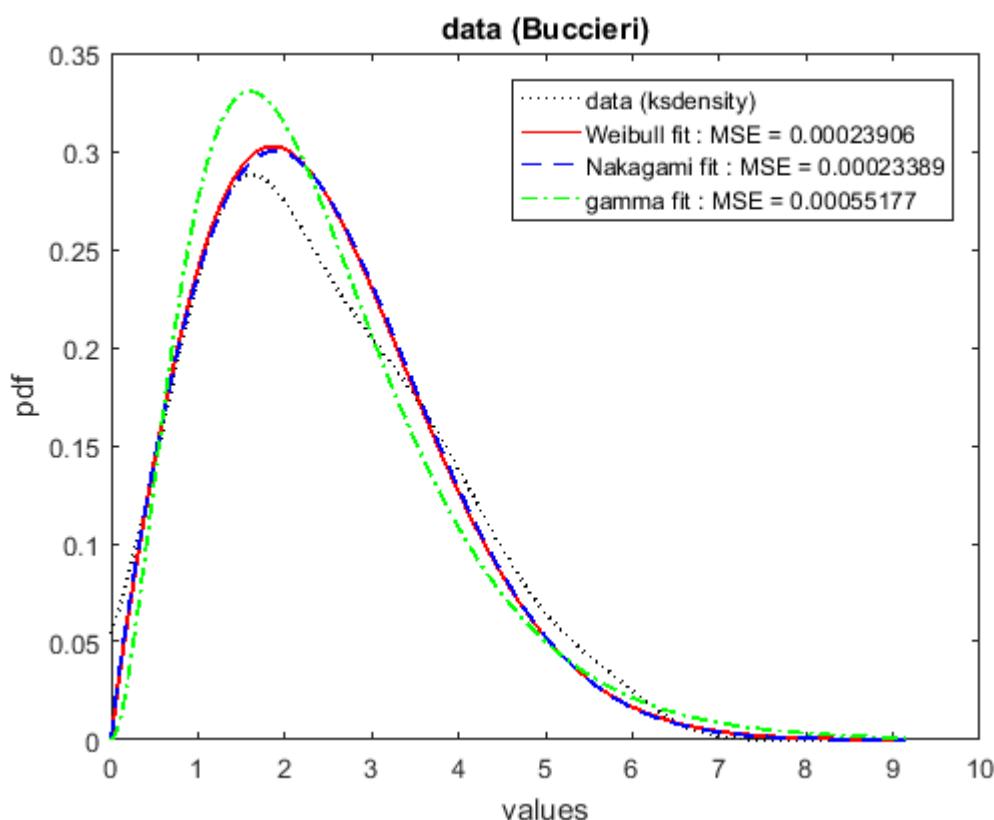
m = 0.92931 Ω = 7.7264 Nakagami fit : MSE = 0.00023389

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 2.9149 b = 0.83562 gamma fit : MSE = 0.00055177

best fit: Nakagami

p m shankar



data (Burke)

-0.72 0.028 -3.533 -2.957 -4.596 0.472 3.849 0.562 1.765 -0.448
-1.661 -4.947 -1.527 -0.334 -3.504 1.548 -1.605 0.481 -2.019 -0.095
0.87 -1.443 -2.127 1.709 -1.965 0.931 1.176 1.548 -1.057 -1.225
-0.652 -1.289 -4.078 -1.279 0.218 -0.379 -2.04 -1.196 -2.869 -2.773
-1.797 -4.368 -0.92 -1.763 -1.248 -2.401 -3.145 -2.244 1.787 -2.209
-2.346 -3.54 -1.658 -2.842 2.161 -3.098 -1.696 -0.796 0.461 0.549
-4.837 -2.075 -1.036 0.046 -3.447 -0.746 -4.469 0.425 -0.5 -1.368
-1.678 -4.575 -0.611 -6.388 -0.759 -0.56 -0.779 0.608 0.248 -2.037
-0.642 -3.436 1.326 1.756 1.639 -2.264 -5.281 -0.504 -1.031 1.581
1.548 -1.137 0.312 -1.086 -2.219 -1.114 1.901 -4.123 -2.168 -1.973
0.26 -2.495 2.137 0.114 -1.786 -0.903 -6.277 -2.162 0.096 -2.412
1.364 0.074 0.681 2.099 0.574 -4.355 -3.749 -0.037 -2.994 -0.256
0.273 -0.033 -3.042 -0.108 -1.207 0.326 -1.095 -1.332 2.003 -1.868
-1.368 -0.674 2.337 0.308 -0.391 2.264 -1.933 -4.368 -1.063 -3.486
2.443 0.059 2.043 0.736 0.823 0.986 0.265 -1.045 3.244 -1.582
0.251 -1.134 1.819 0.971 -1.417 -1.293 -2.992 -0.976 -2.318 0.247
-0.122 -1.528 -3.358 -3.097 -0.916 -1.187 1.319 -0.218 -1.612 -3.092
-1.919 -0.613 -2.194 -3.104 0 -0.244 -0.521 -5.808 -2.171 0.557
-1.847 -3.042 2.573 -2.273 -7.46 -2.539 -3.243 -2.206 3.455 -1.902
2.609 -0.022 2.218 -0.837 -0.358 -0.664 0.889 -0.077 -0.202 -0.367

p m shankar

data (Burke)

Data set contains -ve values

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

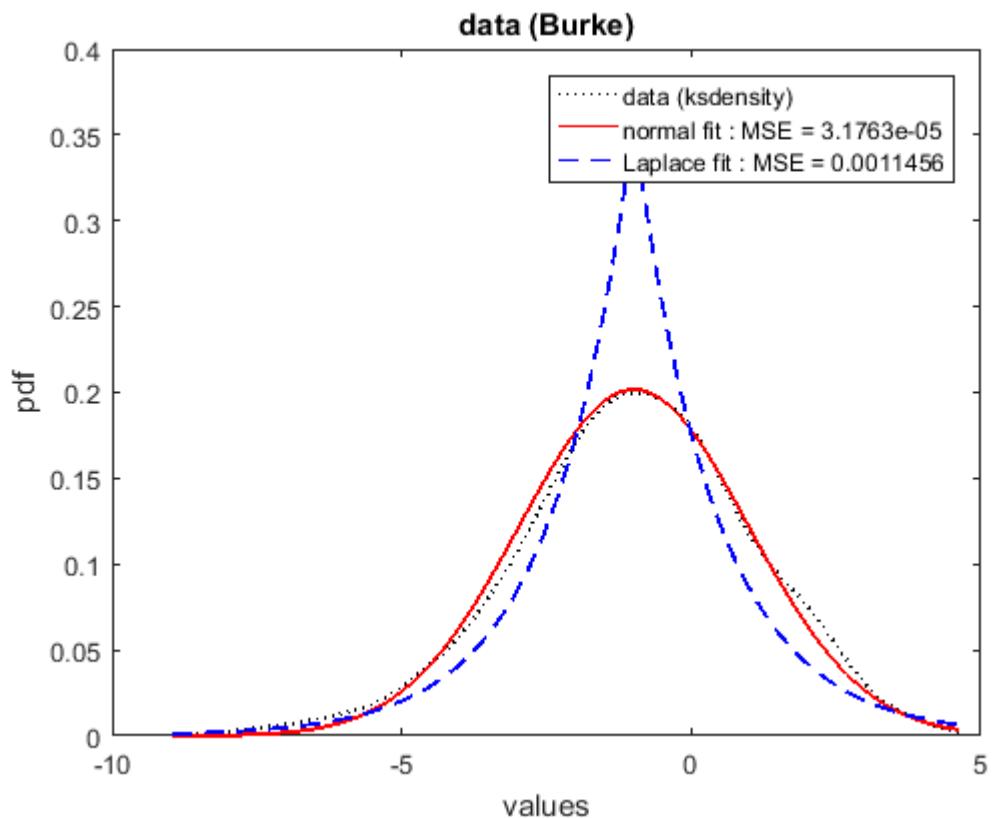
$\mu = -0.991$ $\sigma = 1.9787$ normal fit : MSE = 3.1763e-05

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

a = -0.991 b = 1.3991 Laplace fit : MSE = 0.0011456

best fit: normal

p m shankar



data (Cai)

2.007	0.719	1.809	2.764	2.733	3.074	1.447	3.929	2.538	0.965
2.033	1.507	1.905	1.793	1.524	1.089	5.539	3.307	2.233	2.742
4.999	1.129	0.73	2.903	3.451	4.532	2.967	6.133	3.61	3.959
1.487	3.59	4.717	3.212	2.396	4.32	1.642	3.651	2.281	0.814
3.79	5.865	4.578	2.149	4.594	1.609	2.491	3.425	2.398	2.02
2.391	3.652	2.503	2.858	3.651	0.409	1.139	3.695	4.259	3.403
5.063	0.889	0.452	5.367	1.514	3.729	1.079	1.075	3.705	4.062
1.603	3.104	1.444	2.671	1.98	2.089	2.982	2.491	2.698	2.49
2.651	3.11	4.134	1.127	2.087	3.074	1.825	1.725	1.452	1.573
3.19	2.798	1.263	1.72	1.622	3.528	1.43	2.241	2.272	2.095
2.954	2.278	1.974	0.789	4.578	1.941	1.987	2.876	1.567	2.258
5.61	1.247	2.131	4.807	7.15	1.337	2.388	6.061	1.756	1.919
1.533	2.435	2.2	2.287	1.486	3.061	2.413	1.071	0.271	3.839
1.719	1.985	1.449	1.209	4.418	0.612	3.682	1.773	0.855	2.982
2.778	1.277	3.511	2.738	5.64	2.684	1.087	2.548	4.667	1.04
1.454	1.377	3.485	0.51	1.905	1.073	1.236	1.682	0.747	2.94
1.708	2.838	3.614	1.791	2.481	4.158	1.67	0.715	2.425	1.937
2.369	1.701	0.876	2.932	2.541	1.777	1.807	4.682	4.32	0.989
3.193	1.371	3.584	3.924	1.495	1.345	3.076	1.595	1.929	2.125
2.888	0.951	3.28	2.917	1.817	3.513	3.08	1.621	3.616	1.367

p m shankar

data (Cai)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right) \frac{x^{b-1}}{a} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 2.8513 b = 2.8513 Weibull fit : MSE = 0.00010849

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

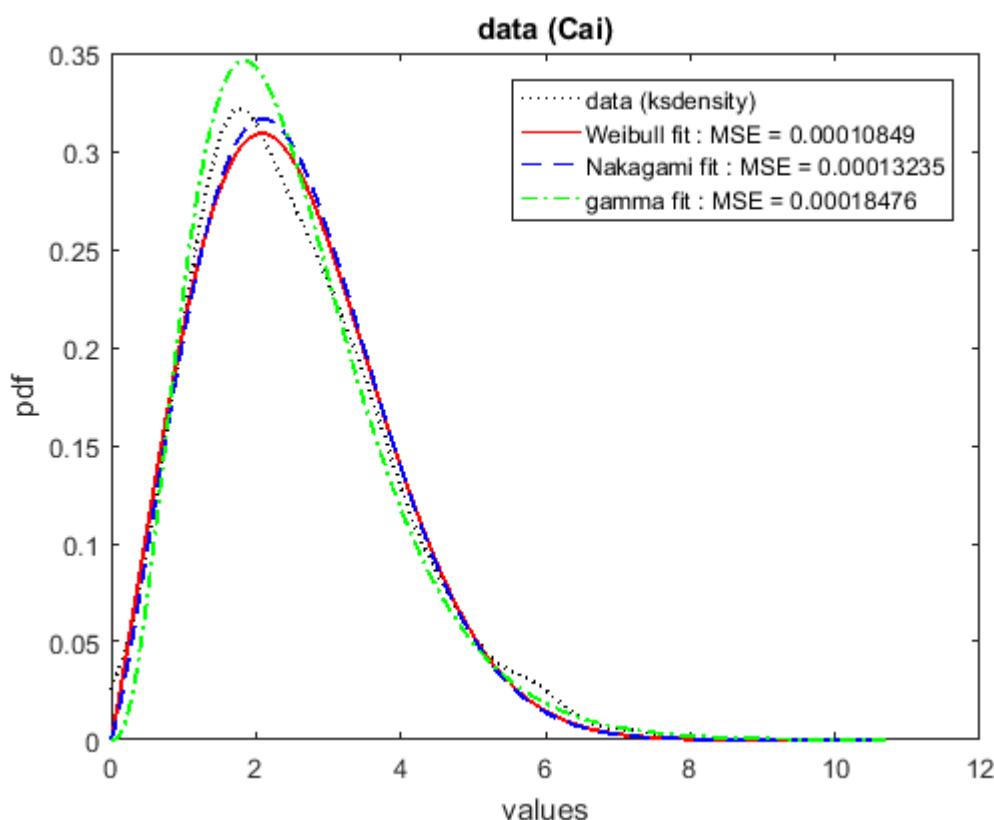
m = 1.1131 Ω = 7.9909 Nakagami fit : MSE = 0.00013235

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{a-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 3.7107 b = 0.67879 gamma fit : MSE = 0.00018476

best fit: Weibull

p m shankar



data (Chan)

0.594 0.622 1.929 -2.888 0.713 0.395 3.741 -0.365 -0.134 -0.983
-1.817 -1.222 -0.625 -1.609 -1.738 -2.247 -2.234 -0.82 0.341 0.696
-0.245 0.579 -0.77 -2.683 -1.988 -1.223 -2.597 -1.425 -1.784 -0.751
1.01 0.303 -0.392 -1.092 -2.678 1.64 -1.557 0.206 0.297 1.522
-0.846 -4.536 -4.053 -0.998 1.851 1.204 1.411 -0.357 1.236 -2.516
0.009 1.107 -0.416 -1.931 -0.207 -3.866 -2.297 -2.392 -1.395 -1.546
-3.722 -2.223 0.033 -0.358 0.833 -0.14 -1.74 0.59 0.102 -1.237
1.36 -3.856 0.158 0.415 -2.216 -0.262 -2.306 -1.242 -0.867 -3.848
-1.267 -1.711 0.284 2.676 0.142 -0.591 -2.208 0.78 0.653 -3.691
-1.786 -7.12 -3.552 -5.37 -1.484 -2.598 1.712 0.476 -4.108 -1.005
-2.083 -1.396 4.377 0.897 -4.301 1.053 0.555 -3.052 -1.248 -1.701
-3.117 -1.615 -4.159 -0.401 -5.006 -2.35 -0.731 -0.267 -1.611 -0.545
-4.577 -0.447 -1.409 -1.428 -1.87 -0.005 -0.999 -1.259 0.533 -4.287
0.479 1.961 -1.045 1.201 -1.68 -0.192 0.319 -0.31 2.16 -1.712
0.637 -2.748 -2.713 -2.753 0.382 2.305 -1.436 -1.57 -4.125 -4.442
0.725 -1.627 -2.508 1.336 -3.312 2.662 1.931 -2.783 -1.343 1.356
-2.015 -2.181 -1.816 -2.907 0.253 -0.311 0.549 -1.442 0.001 -2.12
-2.141 -0.822 -1.446 -0.584 -0.522 -2.458 -2.263 -1.085 0.059 0.95
-0.184 -3.929 -1.96 -1.647 -3.302 -2.038 -1.359 -0.191 -1.655 0.906
-0.532 -1.367 -2.302 0.611 -3.649 -4.26 -0.079 -0.614 -4.66 -1.587

p m shankar

data (Chan)

Data set contains -ve values

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

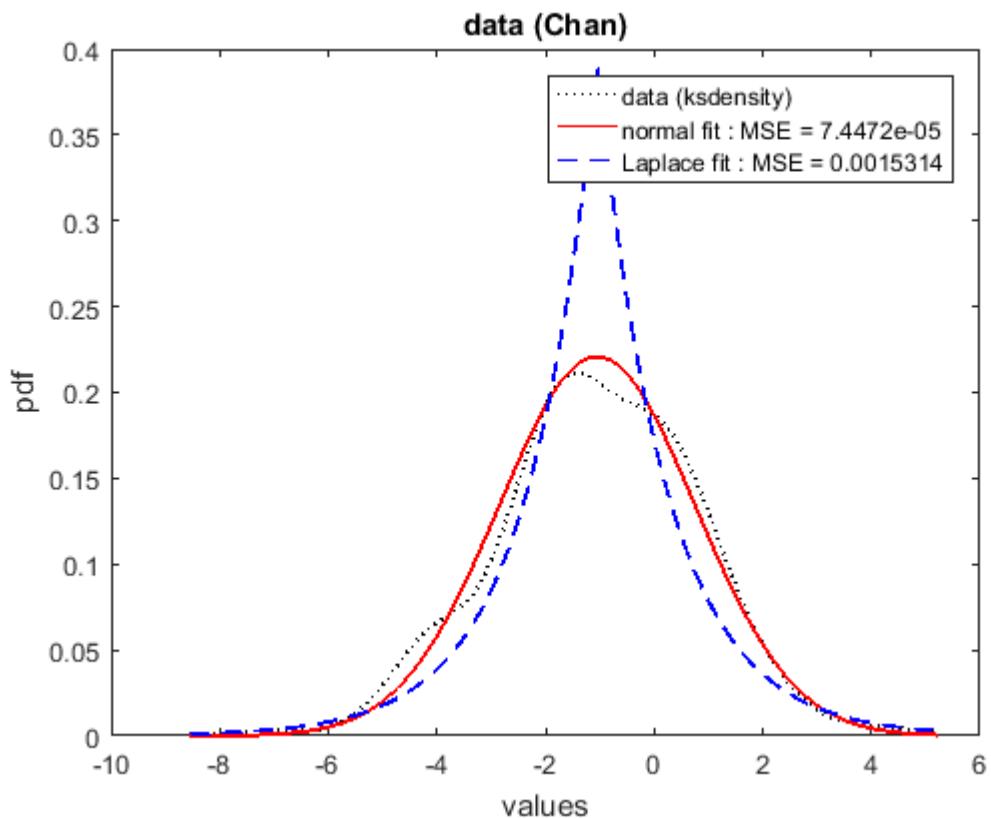
$\mu = -1.0475$ $\sigma = 1.8069$ normal fit : MSE = 7.4472e-05

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

a = -1.0475 b = 1.2777 Laplace fit : MSE = 0.0015314

best fit: normal

p m shankar



data (Ciliberto)

2.24	1.587	2.352	4.251	2.504	3.05	3.432	1.691	1.012	3.06
3.665	2.56	1.341	4.907	4.072	2.026	2.1	1.191	4.783	1.637
1.434	3.793	1.466	2.827	4.724	1.568	1.807	1.935	0.296	1.594
4.978	1.018	1.006	1.691	4.079	1.606	2.566	3.345	4.035	3.71
3.677	1.545	1.994	3.659	0.965	1.973	2.062	0.954	0.309	2.107
2.24	4.285	2.295	2.032	2.361	6.061	1.889	3.813	3.199	2.93
2.45	3.079	2.406	2.652	1.017	2.714	2.187	2.008	1.49	4.156
0.72	2.759	1.604	3.438	0.788	3.159	1.245	3.911	4.468	2.744
2.153	1.699	3.196	1.957	0.53	1.358	4.823	0.802	1.706	2.893
1.952	0.672	2.668	1.175	4.905	3.124	1.101	1.021	1.847	1.525
3.459	1.703	2.043	2.353	2.777	1.6	3.483	3.455	0.912	2.035
2.908	3.216	2.75	4.442	1.816	2.613	1.891	2.788	5.818	2.296
2.794	2.533	1.227	1.209	1.966	3.65	1.278	2.753	1.724	1.726
3.071	1.667	1.991	2.106	2.577	6.185	1.576	1.119	3.094	2.904
2.452	2.159	2.784	1.735	3.303	2.413	1.967	1.652	1.316	1.198
3.17	3.525	2.618	1.107	6.82	1.197	0.647	2.898	2.385	4.541
2.761	2.277	1.79	1.6	1.999	1.919	4.353	2.405	0.557	2.429
2.96	0.442	3.256	2.578	4.537	2.906	1.682	1.924	1.443	3.674
1.474	3.951	3.431	2.283	5.032	2.339	1.714	1.426	1.909	1.821
2.747	3.624	0.569	4.407	4.135	0.953	2.669	0.966	0.802	3.739

p m shankar

data (Ciliberto)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right) \frac{x^{b-1}}{a} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 2.784 b = 2.784 Weibull fit : MSE = 9.6356e-05

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

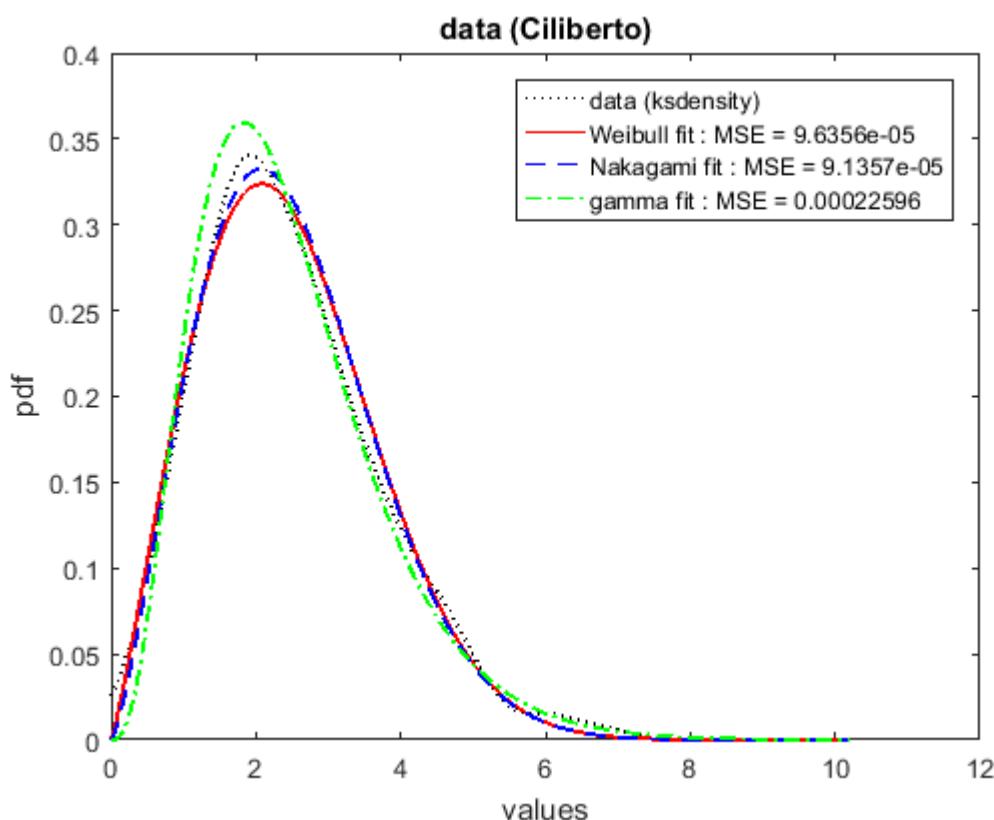
m = 1.1664 Ω = 7.5258 Nakagami fit : MSE = 9.1357e-05

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{a-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 3.8698 b = 0.63604 gamma fit : MSE = 0.00022596

best fit: Nakagami

p m shankar



data (Davis A)

2.355 -0.554 -2.872 -0.499 0.745 -0.535 0.088 -3.784 1.96 0.392
-3.825 -1.7 -1.738 -3.381 -3.76 -1.452 1.254 -1.237 -3.989 -0.266
-1.39 -5.543 1.267 -1.37 -2.258 -2.436 -2.016 -1.05 1.632 -1.467
-2.704 -1.037 2.937 -2.086 -0.026 -0.044 -2.892 -3.635 2.251 1.49
-1.288 -1.184 -1.455 0.706 -3.246 0.352 -1.036 -3.196 -1.353 -1.723
-1.19 -0.499 2.817 0.223 -4.677 -5.95 0.439 -1.71 -0.572 0.162
0.957 -2.89 1.864 -2.658 2.47 -1.068 0.562 -1.866 -4.412 0.876
-1.563 -2.831 -0.41 -1.757 -2.542 -2.92 -0.712 -0.017 -0.917 1.688
0.776 -1.707 -2.06 -3.81 -1.843 -1.287 0.837 -2.396 0.44 -0.108
-5.86 0.623 -1.727 -5.586 -1.902 -1.322 2.265 -2.1 -0.849 3.169
-3.438 1.209 -1.674 -3.247 -2.673 -3.17 2.917 -4.268 -0.914 -2.495
-1.62 -0.804 -0.248 -3.056 0.469 -0.56 -0.048 -5.131 -3.018 -1.078
-0.232 1.127 1.301 0.073 -2.397 2.883 -3.149 -0.407 -2.589 1.044
-3.889 1.599 -0.709 0.664 -0.976 -2.062 -3.955 1.08 0.514 -1.421
-1.211 5.065 2.773 -0.975 -0.666 -4.556 0.685 0.907 -2.563 2.711
0.064 -1.142 0.418 -3.615 -0.889 1.838 -0.039 -2.315 -4.542 1.484
-3.192 -0.566 -3.105 -0.999 -2.65 3.379 5.174 -3.362 -1.45 -2.796
-0.391 -2.239 -3.409 4.892 -2.581 -0.412 0.95 0.906 -2.593 -4.305
1.764 1.598 -4.769 1.867 -3.391 1.474 -1.689 -0.454 1.126 -0.52
0.601 0.401 -1.683 -2.881 -0.493 2.77 -0.259 -0.184 1.021 -1.574

p m shankar

data (Davis A)

Data set contains -ve values

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

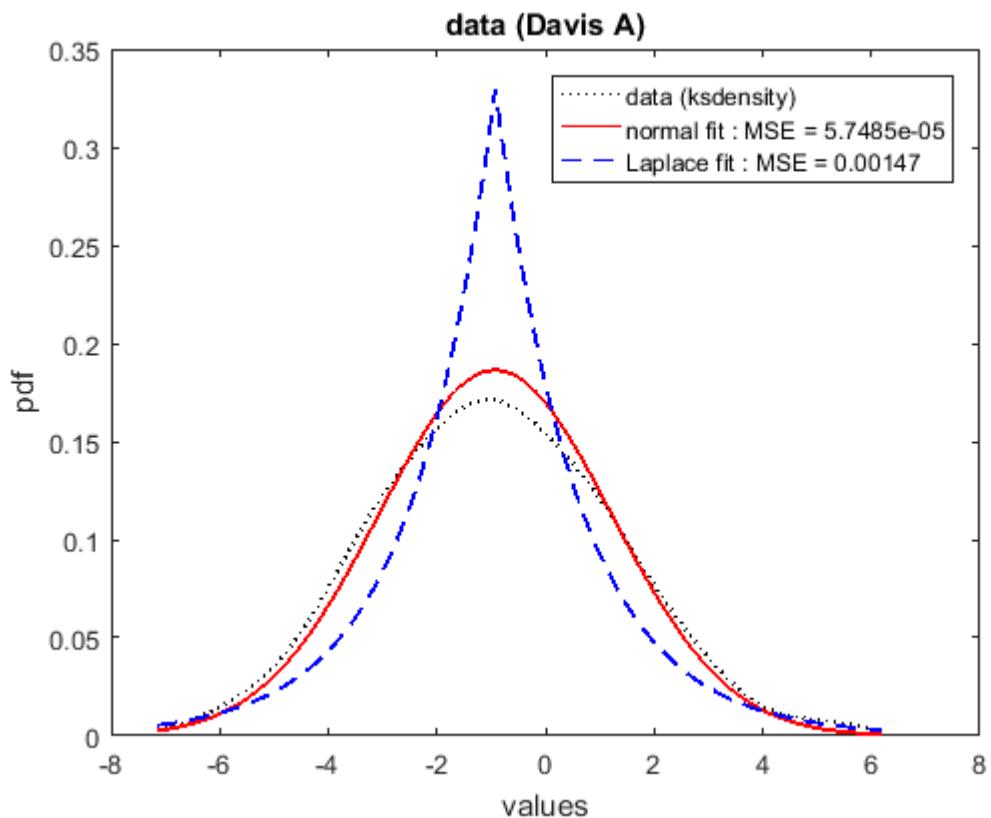
$\mu = -0.92542$ $\sigma = 2.1409$ normal fit : MSE = 5.7485e-05

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

$a = -0.92542$ $b = 1.5139$ Laplace fit : MSE = 0.00147

best fit: normal

p m shankar



data (Davis E)

1.649	2.368	3.338	2.728	2.493	3.514	1.459	2.096	1.533	2.401
3.914	2.424	2.544	0.067	3.109	4.66	2.693	1.201	1.956	1.387
2.682	2.531	1.775	1.709	2.625	1.567	1.252	5.211	1.582	1.117
2.177	3.604	3.307	1.959	2.699	5.222	2.522	2.968	1.294	0.925
3.429	0.118	0.337	1.537	3.301	3.613	4.648	1.18	0.98	2.544
4.724	2.871	4.003	1.722	1.5	3.998	2.652	3.078	2.971	2.14
5.249	1.512	2.52	1.341	2.23	0.964	2.199	4.478	3.146	2.884
1.967	3.408	1.063	4.031	2.155	3.243	5.092	4.432	1.417	0.633
2.328	0.915	1.203	0.6	3.697	0.998	1.683	2.051	4.84	1.157
2.877	3.496	3.51	3.708	3.145	2.041	3.043	2.858	2.843	3.09
2.424	5.578	3.224	1.117	3.696	2.687	0.471	1.532	1.339	0.647
1.139	1.924	4.348	0.853	1.729	1.567	2.341	2.411	1.72	1.406
0.57	1.517	4.473	1.875	1.997	0.518	3.381	2.798	2.592	3.566
2.295	1.918	2.196	0.61	1.391	1.874	4.089	3.535	1.436	0.91
1.244	4.582	1.94	1.946	3.422	2.017	2.652	1.679	0.875	3.76
3.317	3.146	4.541	2.998	2.328	2.155	3.096	2.701	1.58	1.915
4.751	3.635	5.819	2.435	3.488	1.379	4.035	1.624	3.597	3.204
2.282	2.802	1.786	1.366	1.197	3.944	3.552	3.069	1.069	1.165
4.795	1.365	2.08	1.685	0.261	1.857	0.498	2.618	1.59	4.564
2.517	3.542	2.35	3.948	1.095	3.393	0.845	3.903	5.011	1.917

p m shankar

data (Davis E)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right) \frac{x^{b-1}}{a} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

$a = 2.791$ $b = 2.791$ Weibull fit : MSE = 0.00021158

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

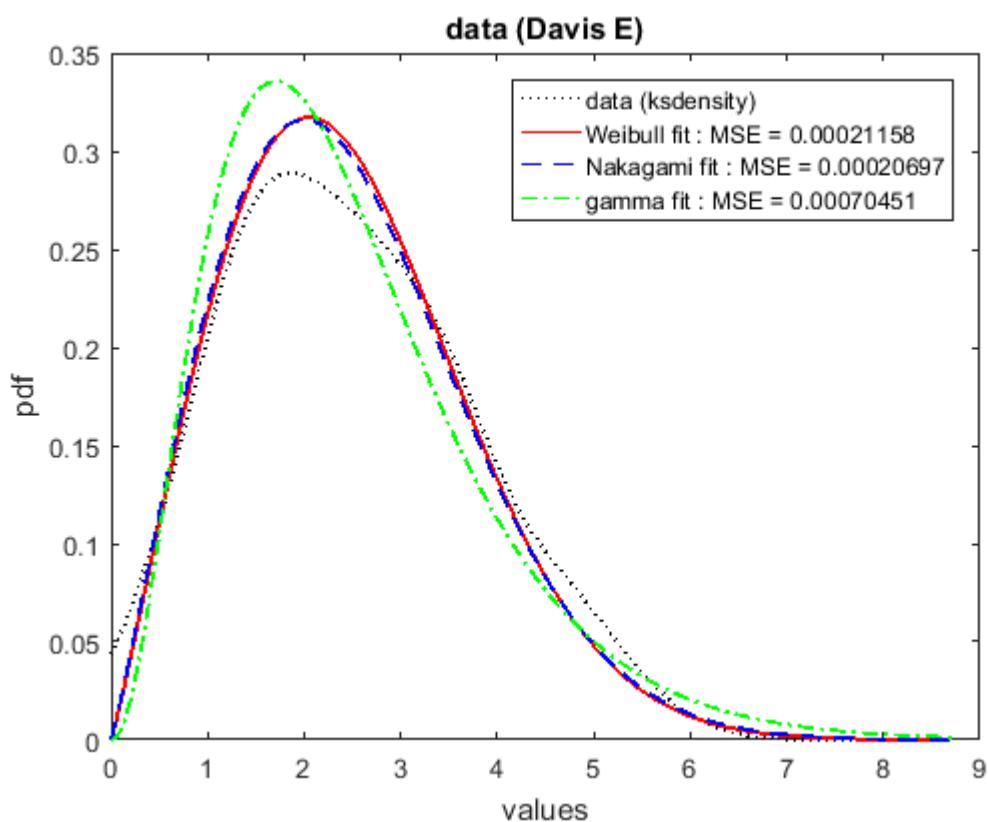
$m = 1.0497$ $\Omega = 7.6493$ Nakagami fit : MSE = 0.00020697

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

$a = 3.2263$ $b = 0.76756$ gamma fit : MSE = 0.00070451

best fit: Nakagami

p m shankar



data (deGruchy)

```

-2.392 -5.225 0.369 -3.305 -2.882 -4.381 -1.54 -0.6 -2.222 1.925
-2.852 -0.619 -2.988 -3.516 -1.518 -0.576 -2.057 -3.578 -3.3 0.858
-3.846 -0.853 0.694 -3.255 -0.811 0.362 2.046 0.339 -1.313 -3.622
0.43 0.729 -0.891 -0.892 -5.717 -1.439 0.38 -2.162 -1.246 -1.571
-4.635 -2.117 -2.115 -4.632 -0.09 -3.658 0.378 -4.005 -2.432 -0.852
-2.66 -1.042 -1.197 -6.542 -4.477 2.964 -0.802 -0.737 -3.111 -2.026
-2.697 -3.817 0.76 -4.111 -3.532 -2.043 -3.399 4.502 -0.455 -1.064
-3.25 1.654 -2.693 -1.016 -0.075 -1.453 -1.985 -1.893 0.386 -2.999
-0.245 -1.902 0.423 -1.258 -3.62 -1.559 -1.077 1.524 -0.517 -0.811
-0.745 -4.35 0.199 -0.607 -1.539 0.832 -1.43 0.176 -0.796 3.013
-1.076 -2.924 -2.308 0.009 1.293 -1.234 1.703 1.89 -1.012 -1.976
-4.358 -2.101 -1.629 2.686 -0.973 -2.706 -1.332 0.201 0.028 -1.784
-1.724 -0.029 1.613 0.432 -3.462 0.025 2.639 -1.421 -4.479 -1.414
2.259 0.437 -0.586 -2.476 0.747 -0.964 0.307 -0.914 1.391 -3.229
-0.885 3.577 0.51 1.846 0.259 -1.374 -0.676 -2.464 -0.804 -2.59
1.923 -5.26 -0.928 -1.099 -0.166 0.491 1.06 -2.936 -0.826 3.798
-0.801 0.505 2.469 0.079 2.088 1.552 -0.987 0.915 -0.496 3.186
-2.848 3.142 -6.065 -1.653 -4.172 -3.384 1.391 -2.151 -1.085 0.288
-0.77 2.057 -4.309 -1.847 0.427 4.143 -0.252 -3.946 -2.398 3.829
0.162 -1.582 -3.227 -0.971 -2.325 -3.606 0.477 -1.782 2.221 -2.577

```

[p m shankar](#)

data (deGruchy)

Data set contains -ve values

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

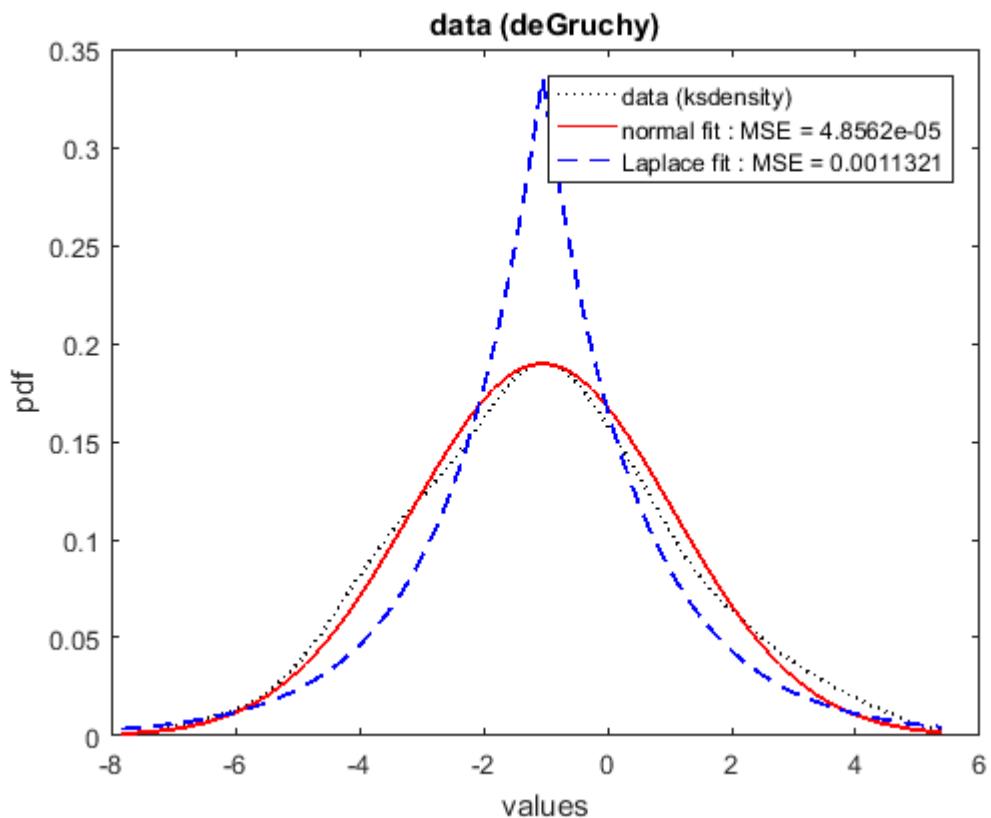
$\mu = -1.048$ $\sigma = 2.1047$ normal fit : MSE = 4.8562e-05

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

$a = -1.048$ $b = 1.4883$ Laplace fit : MSE = 0.0011321

best fit: normal

[p m shankar](#)



data (Deitrich)

4.605	2.673	2.562	4.28	3.841	1.417	0.978	3.214	1.837	2.211
1.936	0.79	1.821	0.871	2.471	2.214	4.762	3.183	2.25	2.683
5.238	2.158	2.066	2.544	3.312	3.488	1.197	3.563	3.931	0.63
0.342	2.765	1.209	1.65	1.404	3.225	3.205	1.69	5.979	1.906
1.69	2.088	2.098	2.762	1.748	3.891	0.977	4.943	2.718	2.203
2.566	1.634	1.721	4.157	2.829	2.735	1.945	2.465	1.884	2.089
1.741	5.122	3.656	3.769	2.609	3.761	2.437	4.366	3.115	0.5
4.138	6.203	0.695	2.46	4.183	2.282	1.962	2.501	1.055	1.554
2.042	2.289	4.183	0.95	2.403	0.724	3.762	3.527	1.471	2.153
2.214	3.307	1.58	1.245	1.809	1.564	3.125	1.034	1.918	6.537
1.648	3.169	2.546	0.376	2.492	2.68	0.72	2.075	2.781	2.261
1.633	4.192	3.509	0.577	3.924	0.991	1.475	4.75	2.044	1.971
3.08	2.881	2.276	1.044	5.439	3.292	2.153	1.236	2.397	3.454
2.789	2.723	3.871	2.121	2.455	1.444	4.454	4.599	0.967	6.192
0.517	0.834	3.047	3.935	5.348	3.833	1.883	3.028	1.567	1.122
1.968	3.913	0.736	2.307	0.957	4.445	4.142	1.307	2.576	2.221
0.485	1.208	2.701	1.07	1.286	3.331	1.109	1.466	0.74	0.764
2.847	1.089	0.614	6.172	1.58	4.02	4.001	1.516	1.691	3.373
2.353	0.645	3.47	0.66	1.719	2.45	2.802	2.18	1.537	1.751
1.919	2.342	0.939	0.459	1.367	3.148	2.131	1.57	0.93	1.518

p m shankar

data (Deitrich)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right) \frac{x^{b-1}}{a} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

$a = 2.7624$ $b = 2.7624$ Weibull fit : MSE = 0.00010298

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

$m = 1.0039$ $\Omega = 7.6786$ Nakagami fit : MSE = 0.0001243

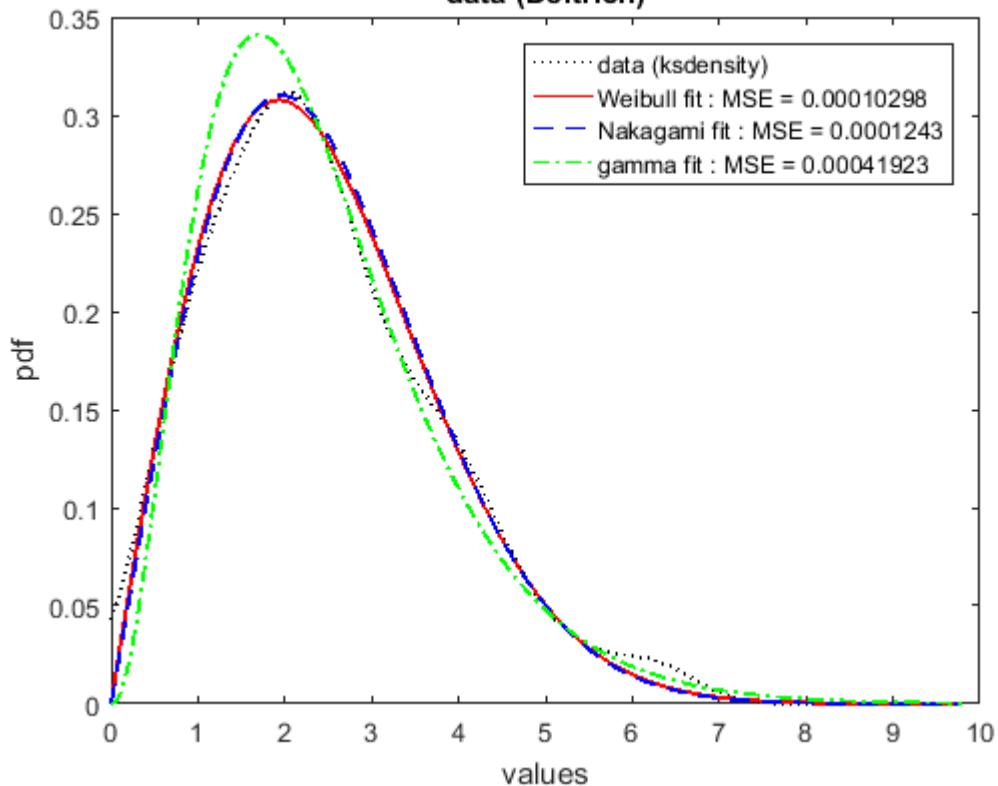
$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

$a = 3.2593$ $b = 0.74941$ gamma fit : MSE = 0.00041923

best fit: Weibull

p m shankar

data (Deitrich)



data (Deng)

-0.184 -2.956 -2.612 -1.935 -3.38 -0.902 -1.726 -1.716 -2.596 0.008
-1.409 -1.162 1.582 2.197 -1.424 1.923 1.39 -4.593 -1.845 -2.088
0.343 -2.109 -2.943 -2.21 -1.09 -5.535 -1.449 -1.758 -1.473 0.308
-5.865 -1.999 -2.596 -0.826 0.662 0.257 -2.066 0.606 -3.736 -2.615
-3.879 0.378 -0.178 -0.208 1.636 -1.054 -1.841 -0.427 -0.487 -2.573
1.477 -1.62 -0.873 0.164 -4.251 0.728 1.139 -1.912 -1.674 1.128
-3.606 -1.309 -0.062 -0.054 -2.239 -0.462 -0.234 -1.974 1.722 -0.524
-1.526 -0.685 -1.674 -2.154 -2.208 -0.078 -2.241 -1.942 -0.881 -1.68
-1.95 -3.583 2.002 -0.148 0.846 -7.16 -2.876 0.518 -3.055 -2.752
-1.129 -1.639 -2.751 0.108 -2.591 -0.307 -4.382 -3.419 -0.539 -4.908
2.013 0.041 -1.302 1.294 -2.457 -2.85 1.933 -5.028 -2.258 -0.973
0.022 0.637 -2.78 -0.722 -1.275 1.133 0.085 -0.507 -1.269 -4.88
0.401 0.556 -2.387 0.08 -1.611 4.98 -4.385 -2.294 0.888 -2.629
-4.286 -2.094 -3.932 -1.176 2.418 -2.158 -2.292 0.701 -1.578 -3.104
-6.429 -1.762 2.726 -0.762 1.566 -1.255 -0.319 -2.351 -0.221 0.542
-0.168 1.042 1.62 -2.304 2.345 0.365 -0.449 -0.137 -2.007 -0.647
2.939 1.393 -2.627 -0.659 0.634 -1.41 -2.604 -1.61 1.286 2.069
2.437 2.726 -0.445 0.019 -6.045 2.285 -2.134 3.074 -2.489 -0.562
-1.066 -0.522 0.051 -1.951 -2.88 -1.106 -0.242 -4.121 -0.315 -1.487
-2.533 -1.061 1.375 -1.985 1.169 -3.65 -3.224 -4.367 -0.811 0.172

p m shankar

data (Deng)

Data set contains -ve values

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

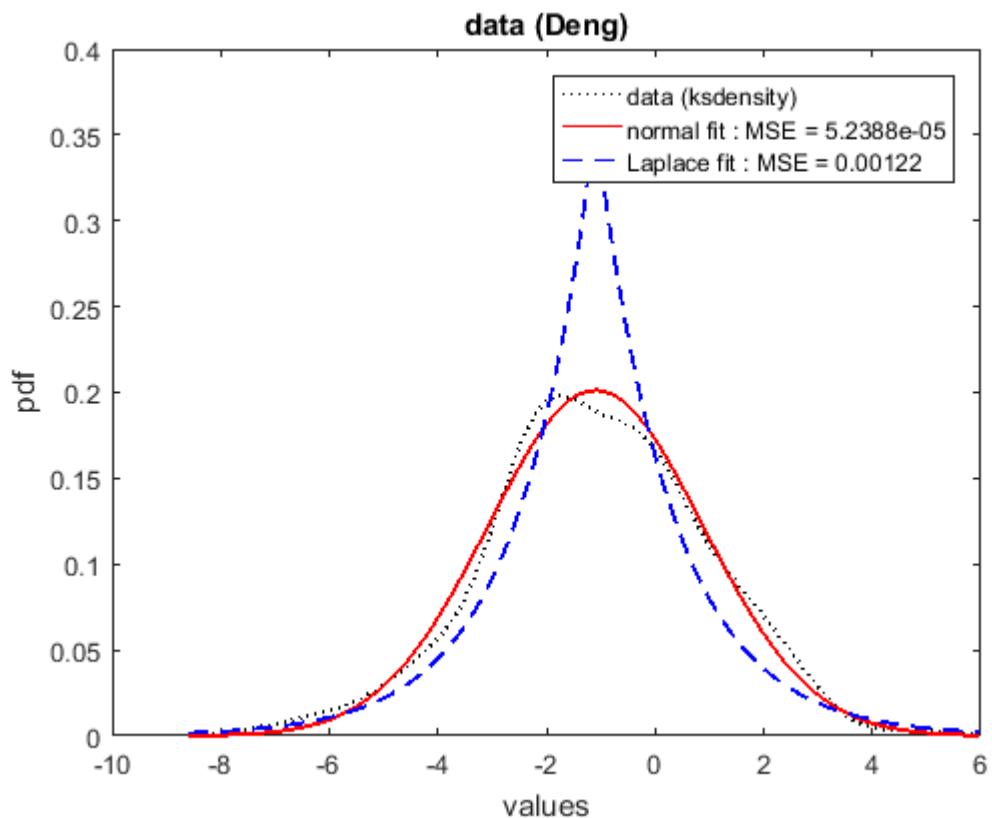
$\mu = -1.0965$ $\sigma = 1.9828$ normal fit : MSE = 5.2388e-05

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

$a = -1.0965$ $b = 1.402$ Laplace fit : MSE = 0.00122

best fit: normal

p m shankar



data (DePaul)

3.15	3.38	4.156	2.086	1.963	0.387	1.383	2.911	2.991	4.168
3.366	0.27	1.333	3.801	3.119	3.008	1.525	6.066	3.18	2.662
1.965	2.693	2.693	3.549	2.594	2.018	0.765	1.804	2.651	3.199
3.15	1.27	1.669	2.846	2.315	1.662	1.144	0.684	3.667	3.341
3.222	1.557	2.477	2.141	4.105	1.453	2.898	4.143	2.068	4.208
1.872	2.215	1.742	2.077	1.953	5.425	5.236	2.499	0.73	3.999
4.175	0.732	2.764	2.684	0.454	0.538	0.766	3.178	1.431	1.36
4.423	2.361	3.136	7.191	2.974	3.076	0.788	1.917	1.805	1.715
3.069	2.34	2.485	3.271	3.292	3.134	4.282	1.544	0.917	1.676
0.488	3.643	2.727	2.489	0.391	2.373	2.655	4.241	1.306	2.108
0.163	3.728	1.377	4.515	3.995	5.121	0.394	1.581	0.621	0.086
0.929	4.551	4.024	2.476	2.7	5.52	0.988	4.078	2.698	0.559
3.921	2.007	0.921	3.761	5.408	2.59	0.954	6.106	2.663	2.502
2.491	1.465	3.5	1.237	0.984	2.052	2.527	1.458	1.622	0.661
1.253	3.115	4.447	4.567	0.478	1.282	3.804	2.938	4.397	8.971
2.691	0.835	4.057	0.754	1.699	1.098	1.936	4.553	1.785	0.748
4.87	1.66	2.124	2.539	2.967	1.968	2.119	1.66	1.894	2.383
4.539	2.924	1.44	2.881	1.65	3.221	1.399	0.706	1.293	1.181
2.094	2.464	2.159	1.61	0.256	4.099	2.38	1.759	0.807	2.052
4.982	1.509	1.95	2.102	1.221	2.521	0.433	3.593	6.581	1.233

p m shankar

data (DePaul)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right) \frac{x^{b-1}}{a} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 2.7978 b = 2.7978 Weibull fit : MSE = 0.00012201

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

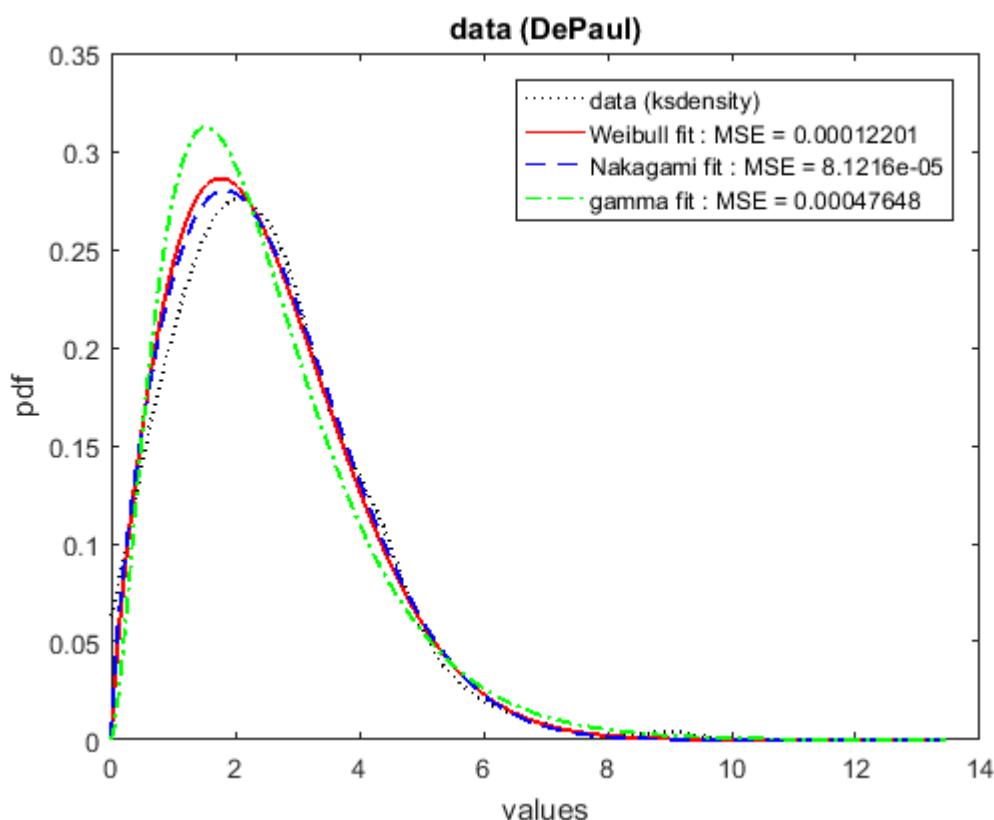
m = 0.84119 Ω = 8.284 Nakagami fit : MSE = 8.1216e-05

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 2.5849 b = 0.96341 gamma fit : MSE = 0.00047648

best fit: Nakagami

p m shankar



data (DeVane)

-1.566 -1.894 -0.02 -6.901 -0.383 -0.487 -4.033 -3.031 -0.631 1.035
-1.859 0.193 -0.279 -2.04 -2.014 -0.117 -0.71 -1.977 -3.587 -3.99
-0.037 -2.477 0.094 1.57 0.708 -0.668 1.674 -0.502 -1.47 -1.177
-1.117 -0.243 -1.665 1.301 -2.422 -1.238 -4.387 1.507 -2.886 0.173
0.852 -0.031 0.023 0.912 -3.371 -2.895 -5.08 -1.003 1.521 -3.139
-1.587 -0.722 -1.591 -1.296 -2.44 2.134 -1.734 -3.046 -0.309 -0.648
-1.239 -1.686 1.264 -1.108 -1.208 0.097 -1.908 -0.892 2.763 -4.473
-3.183 -0.098 1.181 -0.153 1.127 0.916 -1.709 -1.411 -1.314 -2.019
1.634 -1.614 -1.756 0.844 0.818 -2.133 -1.198 -0.941 1.459 -1.742
-5.033 -1.674 -1.153 -1.546 -2.279 -2.645 -2.455 -0.459 0.015 -1.017
-5.676 -3.009 1.609 0.021 1.451 -3.159 0.785 -3.088 1.517 0.784
-3.211 -3.018 -0.815 -2.854 -2.64 -0.123 -0.629 -3.428 -2.584 0.263
-1.88 -2.579 -1.916 2.11 1.529 -0.396 -1.771 -2.224 2.979 -1.494
-2.84 -2.548 -4.691 -4.271 -0.893 -2.612 0.163 -1.295 -0.949 1.255
2.196 -0.736 0.276 -0.166 0.026 -6.059 -5.52 0.493 -0.895 1.323
1.808 -1.447 -0.933 -2.123 0.803 1.087 3.264 0.01 1.65 -1.9
-1.724 2.965 2.395 -3.484 -2.542 -1.15 1.955 -1.045 -2.604 -1
-2.007 -4.399 -3.742 -3.01 -3.914 -2.444 0.355 -0.128 -4.424 -0.797
-0.621 -0.021 -1.019 2.257 -0.032 1.649 4.853 -2.391 1.436 -1.386
0.727 -0.885 3.2 2.286 0.475 -1.239 -2.571 -0.444 -0.02 -1.91

[p m shankar](#)

data (DeVane)

[Data set contains -ve values](#)

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

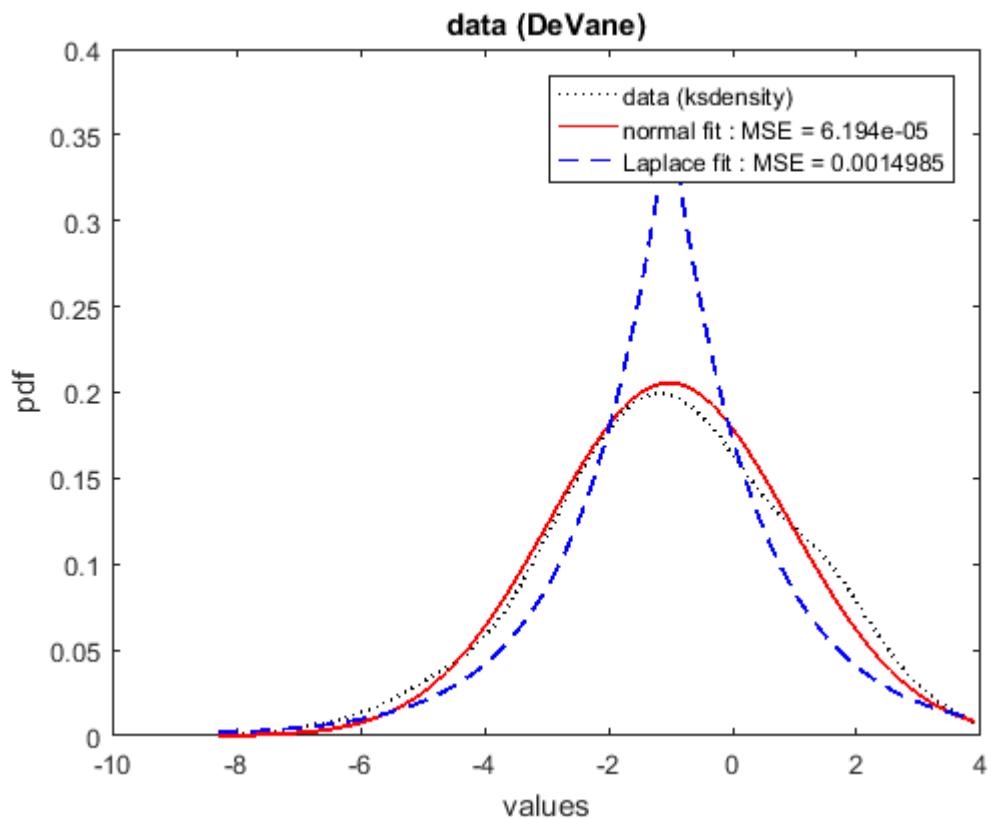
$\mu = -1.0201$ $\sigma = 1.942$ [normal fit : MSE = 6.194e-05](#)

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

$a = -1.0201$ $b = 1.3732$ [Laplace fit : MSE = 0.0014985](#)

best fit: normal

[p m shankar](#)



data (Ding)

3.005	1.296	4.433	4.03	2.429	1.836	2.171	2.315	2.224	2.928
1.415	1.964	0.365	4.292	5.436	2.919	1.2	2.639	3.703	3.345
3.86	2.638	5.744	3.73	3.62	2.964	3.107	2.878	1.341	5.74
1.002	1.322	0.834	3.598	2.532	1.528	0.892	5.508	2.6	0.472
0.234	1.373	2.324	2.212	2.627	0.544	3.016	3.776	4.224	2.149
3.691	2.132	2.761	2.931	1.921	0.797	3.198	1.586	0.996	0.709
2.422	4.13	6.832	1.669	3.483	1.105	0.554	1.182	2.529	2.718
2.299	0.84	2.823	4.034	2.152	2.356	3.499	2.356	2.9	3.121
0.733	2.863	2.828	3.503	1.147	2.768	3.644	4.175	1.339	5.477
1.901	1.5	3.195	4.512	3.958	1.887	2.158	2.275	2.601	2.178
2.543	1.002	1.726	4.412	3.542	4.076	2.116	2.608	2.107	3.517
0.906	1.221	0.747	1.363	1.819	4.936	2.974	1.028	2.311	1.572
2.466	2.051	3.5	3.256	1.47	3.277	1.289	2.786	1.915	1.593
2.221	3.111	1.582	1.047	4.088	3.847	0.997	2.264	1.175	1.241
5.582	1.887	4.223	1.846	0.872	1.833	2.031	4.415	2.732	1.732
2.015	2.465	2.835	0.901	2.916	5.259	2.409	1.861	2.752	1.645
3.688	3.219	2.921	0.776	0.505	4.153	3.072	3.135	0.8	3.06
2.38	6.936	1.727	0.944	5.392	1.511	0.644	1.582	3.498	1.877
3.503	0.451	3.2	2.856	2.634	2.12	2.675	3.76	3.078	1.888
2.476	3.033	2.871	4.274	2.768	0.74	4.001	2.006	2.01	2.437

p m shankar

data (Ding)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right) \frac{x^{b-1}}{a} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 2.8767 b = 2.8767 Weibull fit : MSE = 0.00016919

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

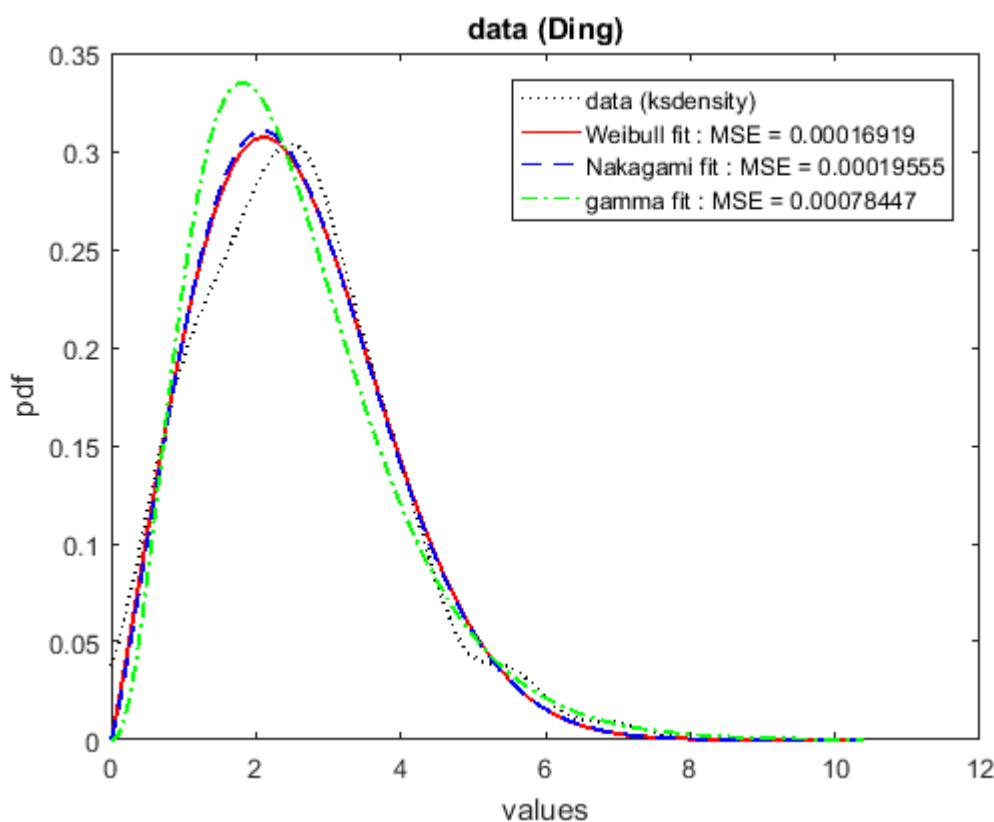
m = 1.0843 Ω = 8.1295 Nakagami fit : MSE = 0.00019555

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 3.4798 b = 0.73167 gamma fit : MSE = 0.00078447

best fit: Weibull

p m shankar



data (Dogan)

-2.247 -2.225 -1.198 1.643 0.905 -0.935 -2.418 -3.146 -0.059 1.138
-3.586 -3.33 -0.147 2.452 -1.884 -0.032 2.371 -2.73 -1.216 0.072
1.583 -2.799 -1.105 0.493 -0.746 -2.024 2.031 -1.887 -2.092 -3.284
-1.215 -1.345 -3.576 -2.603 0.119 1.121 -1.786 1.441 -1.693 -3.956
-1.765 -1.241 -0.495 0.696 -0.644 0.118 -0.484 2.527 0.213 -1.308
-1.952 -2.014 -1.304 1.913 -0.378 2.725 1.728 -2.146 -3.002 -3.53
-1.814 -2.484 -0.374 0.352 -1.467 -2.314 -1.361 -2.537 3.39 -1.335
-2.548 1.993 0.697 0.859 -1.756 -0.78 -3.056 0.966 1.405 -0.656
3.28 -2.39 -2.21 1.46 -0.436 -3.185 -2.699 -1.737 -0.678 -2.259
-3.754 1.94 2.403 0.345 -3.948 -4.278 -0.499 2.219 -1.51 -3.875
-0.756 -3.084 -1.065 -1.603 1.012 -4.072 -1.824 -1.139 -0.147 -0.689
0.121 -1.028 -3.091 1.095 -3.524 -3.845 -3.893 -1.809 -3.767 -1.11
-3.043 -3.744 2.489 -0.49 -2.876 1.343 -2.398 -0.092 -2.997 -2.628
-1.02 -0.549 0.598 -1.825 -2.191 -2.082 0.14 -0.27 -1.379 -0.747
-3.877 1.886 2.003 2.124 -2.443 -4.64 -1.573 -1.831 -2.642 -2.702
-0.11 -1.295 -2.396 1.736 -4.365 -1.725 1.457 -2.423 -4.836 1.917
-0.699 -0.914 -0.852 -2.101 0.663 1.54 -1.488 1.16 -4.512 -0.843
-0.436 1.402 -4.044 -3.641 -3.701 -4.374 4.403 -1.151 -1.396 1.248
-0.954 1.857 -4.471 -3.748 -0.67 -2.43 -1.9 -2.83 -0.211 0.11
-2.677 -1.818 -2.8 0.068 -0.962 -1.385 2.211 0.115 1.868 -0.051

p m shankar

data (Dogan)

Data set contains -ve values

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

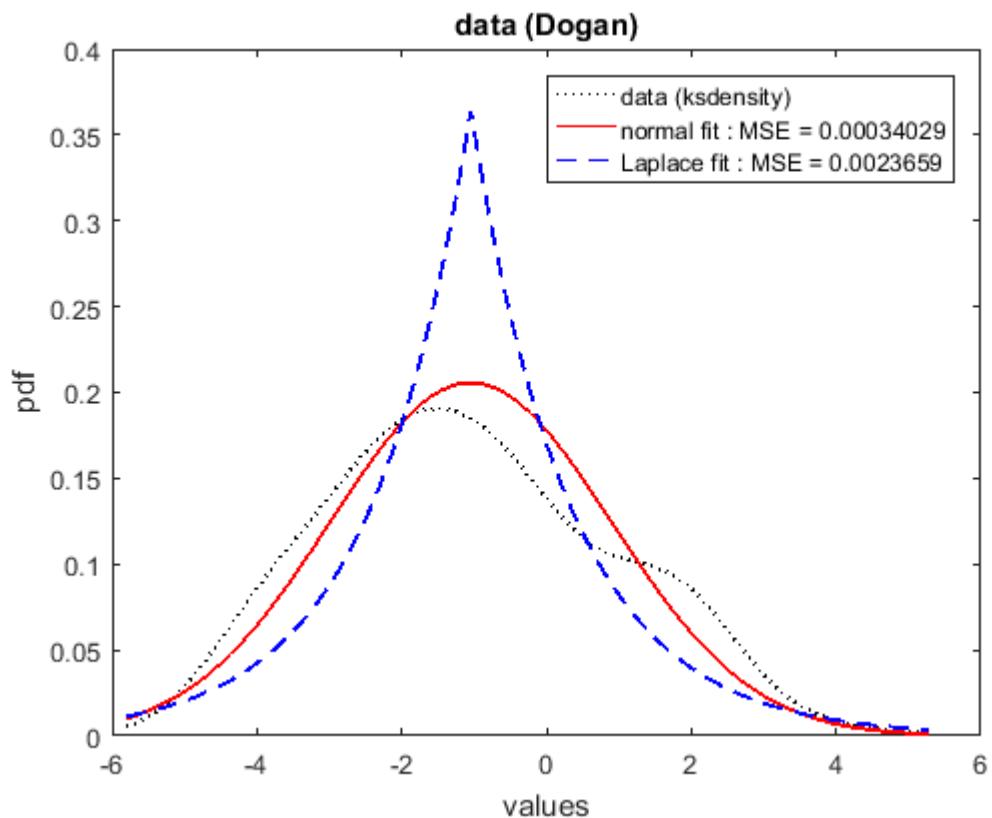
$\mu = -1.045$ $\sigma = 1.94$ normal fit : MSE = 0.00034029

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

$a = -1.045$ $b = 1.3718$ Laplace fit : MSE = 0.0023659

best fit: normal

p m shankar



data (Donatiello)

3.172	2.743	1.193	3.553	3.878	3.584	3.366	2.862	3.949	1.105
2.912	3.203	2.271	2.396	2.117	2.685	3.397	2.666	3.66	3.339
3.905	2.095	3.954	1.143	2	3.769	3.718	1.821	2.539	2.24
4.485	2.51	2.306	0.611	2.342	2.831	4.317	3.923	0.615	3.104
0.386	2.656	2.853	1.952	4.964	2.484	1.85	3.115	3.362	0.949
2.152	5.463	1.508	8.516	4.32	4.195	2.553	9.043	0.147	2.373
1.678	5.007	1.277	3.687	1.01	0.723	3.465	1.17	4.933	1.237
3.105	2.304	1.18	3.223	0.142	1.158	0.992	2.526	1.578	1.365
2.211	3.687	3.766	4.317	2.802	2.608	5.052	3.393	3.563	1.849
2.539	1.986	2.988	0.674	3.006	3.412	4.943	2.565	3.027	0.958
2.338	2.67	1.332	2.73	4.554	4.317	0.898	1.515	5.607	5.713
2.941	2.074	2.014	1.01	1.954	5.123	1.431	0.605	3.491	4.075
0.552	1.771	1.293	2.414	2.723	2.005	3.502	0.666	1.651	0.56
2.082	2.021	2.524	2.468	2.734	1.297	2.49	1.106	0.983	2.749
3.641	1.811	3.777	0.794	4.199	0.818	0.868	2.357	2.052	2.486
3.392	2.609	1.827	3.298	2.511	1.331	1.638	5.726	5.011	0.762
1.982	0.633	2.03	4.241	4.972	1.248	1.341	1.038	2.896	1.426
3.02	2.829	2.343	3.442	0.586	0.903	4.535	1.936	5.248	2.501
1.921	2.127	0.356	2.842	5.636	2.6	1.182	1.308	1.619	3.836
1.79	2.146	4.301	2.939	2.002	3.241	3.393	1.586	1.725	3.005

p m shankar

data (Donatiello)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right) \frac{x^{b-1}}{a} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 2.9409 b = 2.9409 Weibull fit : MSE = 0.00012342

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

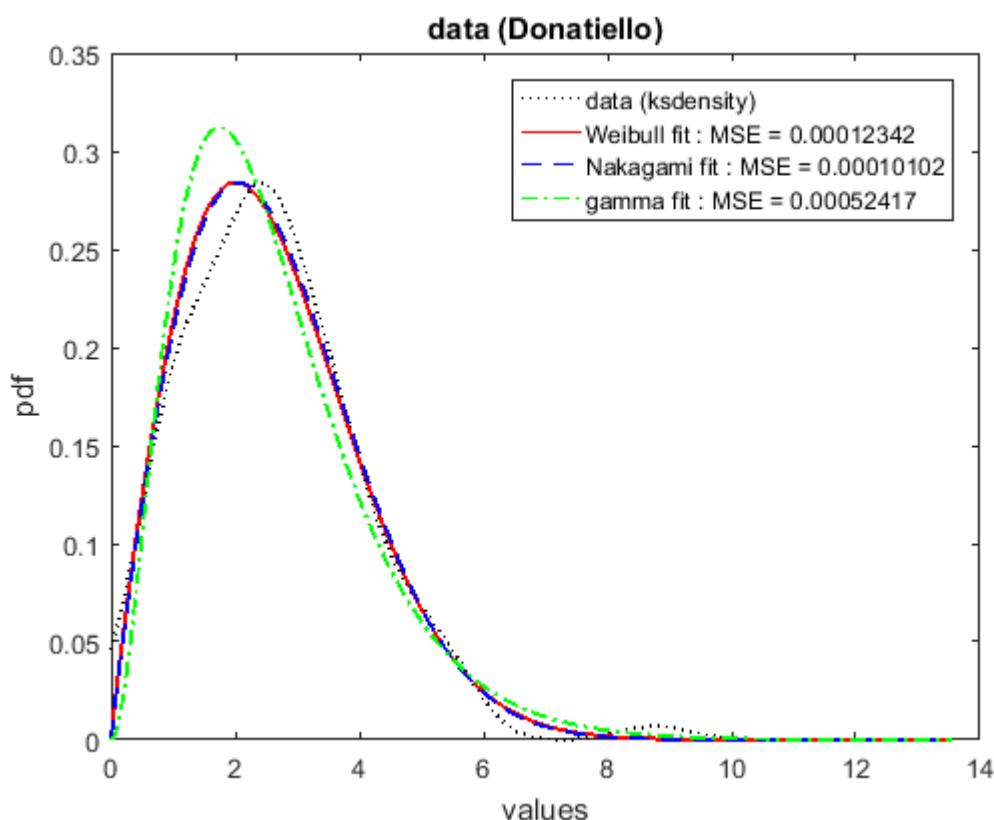
m = 0.95576 Ω = 8.8156 Nakagami fit : MSE = 0.00010102

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{a-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 3.0244 b = 0.86268 gamma fit : MSE = 0.00052417

best fit: Nakagami

p m shankar



data (Doyle)

-2.118 -2.664 -3.349 0.183 -0.168 -1.439 -2.643 -3.944 -1.178 -0.768
-0.808 -0.092 0.612 0.453 3.419 0.436 -3.894 0.2 -6.097 -5.452
-4.03 -1.968 1.447 1.842 -0.992 -2.165 -1.402 -5.18 -2.496 -3.946
-0.049 2.143 -1.555 0.124 2.027 -2.947 -3.065 -1.123 2.825 -5.317
-0.372 -3.863 0.397 1.684 -2.093 -2.352 0.581 1.215 -1.438 0.446
-4.317 -2.145 -1.033 -4.937 -2.787 -3.93 1.251 1.043 -1.041 3.439
-1.256 -0.193 2.707 -2.544 0.517 -2.557 0.453 0.809 -0.966 -1.744
-0.184 -1.865 0.859 -2.251 -3.488 -2.143 1.256 -5.759 -3.943 -0.056
-1.069 -2.072 0.497 1.485 -1.061 -4.256 -0.538 -1.91 -3.459 -4.069
1.079 -1.825 -5.551 -2.111 -0.23 1.024 -1.689 1.328 -3.501 -1.021
-2.571 -4.084 2.559 -4.327 -2.261 1.416 -2.286 -1.1 1.465 -0.141
-0.728 -6.33 -1.001 -2.508 -3.272 -0.711 0.349 2.653 -0.735 3.435
1.679 -0.749 -1.502 0.513 -5.605 0.467 -1.767 -1.81 -0.849 -1.255
-5.518 2.857 0.931 0.361 -0.049 -1.452 -2.397 -1.723 1.168 -0.375
-2.329 1.778 -1.369 -0.804 -0.053 0.202 0.304 -2.867 -2.105 -3.791
-3.981 -0.983 -0.165 -1.554 -2.223 -6.129 -1.565 -0.862 -0.962 -1.306
-4.45 -1.22 -0.395 -1.098 -3.499 -1.524 -2.723 -0.892 -0.148 -2.896
0.588 -1.6 0.451 0.216 -0.496 0.88 -2.009 -0.721 1.471 -2.432
-0.483 -1.81 -4.347 -2.643 1.761 -0.535 0.499 -3.046 -2.028 -2.938
-1.173 -2.858 -0.625 -2.041 0.175 1.603 -1.672 1.602 -5.231 -2.224

p m shankar

data (Doyle)

Data set contains -ve values

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

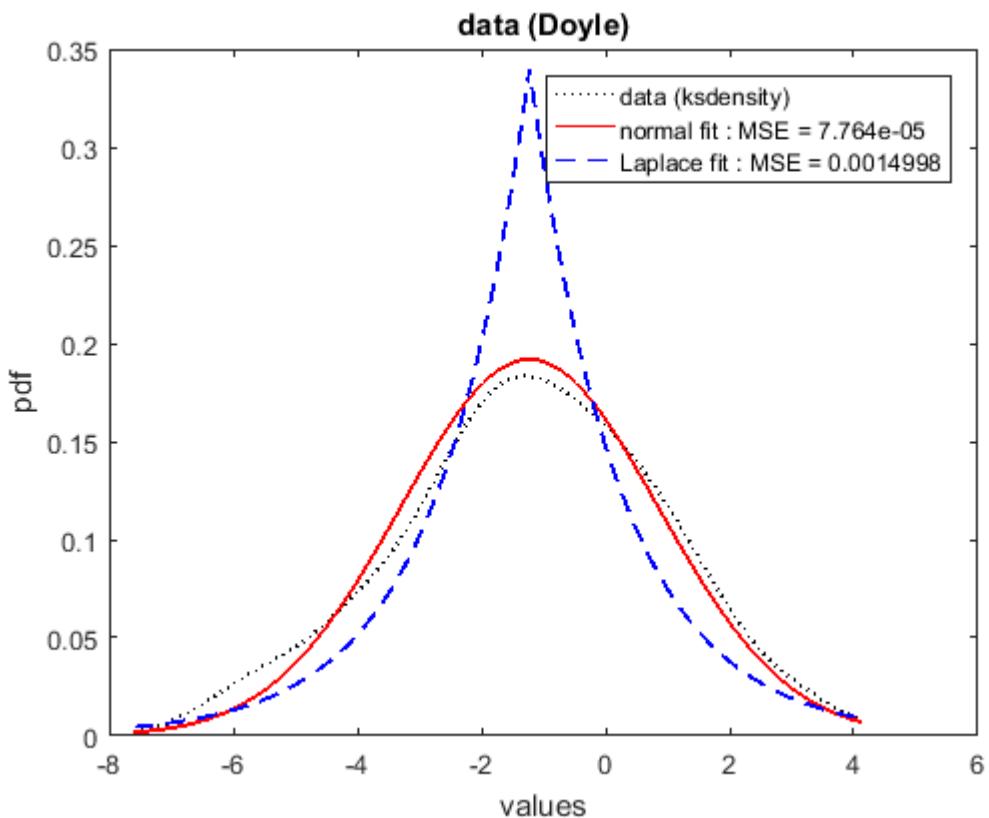
$\mu = -1.2261$ $\sigma = 2.08$ normal fit : MSE = 7.764e-05

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

a = -1.2261 b = 1.4708 Laplace fit : MSE = 0.0014998

best fit: normal

p m shankar



data (Drzewicki)

```

-1.292 -0.384 0.793 -2.279 -1.073 -0.844 -3.448 -3.154 -0.55 -1
-0.308 -0.436 -0.076 -1.913 0.38 -3.855 0.443 1.501 0.666 1.032
3.529 0.436 -1.706 -1.89 -5.172 -0.92 -1.088 -2.217 -1.226 -0.502
-0.93 0.103 -1.989 0.006 -2.492 -3.47 0.078 -2.38 -4.636 0.764
-0.743 0.042 2.826 0.79 -1.563 1.357 -0.503 -0.781 -1.959 -1.944
-0.006 -2.837 -0.219 -3.362 -0.884 -1.845 -1.151 -1.479 -0.582 0.91
-1.698 -1.372 0.549 -4.437 1.61 -0.513 2.467 -0.496 -2.333 -1.381
-1.952 1.054 -3.086 -2.203 -0.507 -0.833 -1.467 -0.381 1.715 -0.584
-1.53 1.832 -1.07 -1.466 1.522 -2.523 1.895 -0.9 2.241 -0.148
0.874 -0.026 1.408 0.077 -3.655 -1.374 -0.66 -0.652 0.05 -1.256
-2.424 -4.674 -0.933 -4.202 -2.124 0.88 -0.184 -1.453 2.164 -4.75
-0.295 -0.118 0.821 -2.664 2.786 -0.999 -2.452 -0.804 -3.225 -1.992
-4.446 -0.479 -2.514 -1.735 -2.531 2.761 -1.099 2.362 -1.766 2.609
-0.448 -2.585 -0.427 -1.902 1.975 -0.452 -0.316 -4.036 -3.441 -4.244
-0.029 0.988 -1.351 2.101 -1.833 -3.057 -4.613 -3.204 -2.054 -3.339
-0.718 -0.182 0.533 -1.294 1.006 0.696 -1.676 -0.426 -1.043 2.758
-2.033 -1.037 -1.697 -0.799 -2.776 -2.56 -0.091 -3.736 0.133 -1.463
-2.115 2.184 -1.157 -3.709 -0.258 0.784 -1.259 0.178 0.755 1.659
-4.484 -4.198 0.331 -1.691 -2.4 -1.319 -2.533 -1.904 2.78 1.93
1.284 -4.518 -0.262 -3.761 0.987 -2.342 -4.953 -0.453 -1.15 0.427

```

p m shankar

data (Drzewicki)

Data set contains -ve values

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

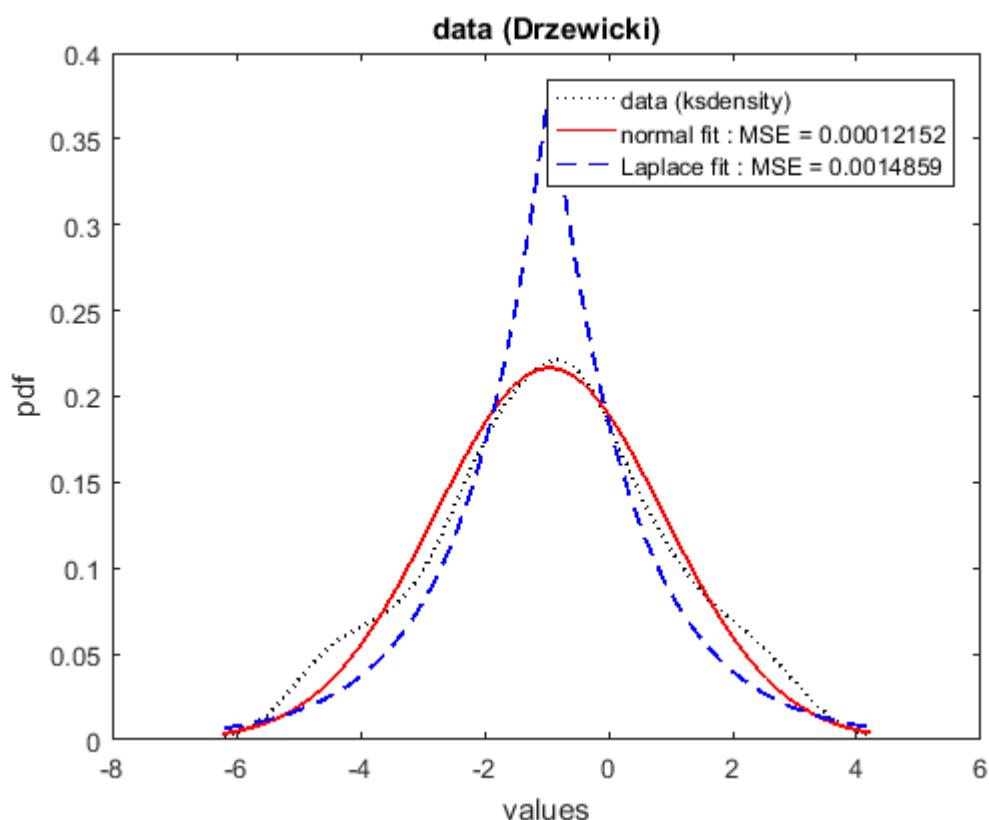
$\mu = -0.94981$ $\sigma = 1.8422$ normal fit : MSE = 0.00012152

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

$a = -0.94981$ $b = 1.3026$ Laplace fit : MSE = 0.0014859

best fit: normal

p m shankar



data (Dunkers)

3.071	2.541	3.693	2.421	1.14	4.652	1.343	2.169	0.69	3.672
5.2	1.762	2.694	1.446	3.739	4.118	3.77	4.582	1.43	0.671
3.523	0.709	3.513	3.703	1.862	0.927	5.429	3.756	0.458	1.295
1.068	1.269	3.571	3.369	2.906	1.679	4.19	1.519	1.25	1.54
3.265	2.197	0.864	0.334	1.466	3.632	1.749	0.818	4.79	0.28
3.522	1.252	1.427	2.03	1.996	2.104	3.046	2.218	1.043	3.262
3.6	2.179	4.79	2.573	0.942	2.271	4.408	2.117	1.611	1.401
3.936	2.785	2.861	2.628	4.801	1.793	0.4	2.363	1.656	2.338
3.645	3.248	2.997	3.495	4.009	1.853	1.472	1.597	3.018	0.355
1.359	2.006	1.442	1.622	2.698	4.768	2.64	5.628	1.035	2.865
1.469	1.27	2.351	2.594	5.997	0.337	2.583	4.114	4.33	3.724
2.014	1.66	1.253	1.842	4.66	2.961	1.066	1.631	2.592	0.488
1.538	1.688	0.633	1.603	1.233	4.377	2.468	2.708	1.142	3.472
0.675	0.936	1.93	3.384	3.165	4.546	2.637	1.025	3.433	3.872
1.949	3.134	3.635	2.205	1.127	1.017	1.24	2.239	4.125	3.969
2.825	3	1.613	2.557	2.794	1.523	0.687	1.78	2.237	2.706
3.801	2.979	2.479	1.899	1.283	3.08	1.25	3.382	0.611	0.753
4.852	3.78	0.615	1.609	2.945	4.349	4.209	1.379	0.683	1.335
1.661	1.291	4.229	2.077	2.635	2.264	0.873	2.751	1.28	1.398
1.613	1.203	3.406	0.875	4.583	2.405	3.285	1.361	0.502	3.567

[p m shankar](#)

data (Dunkers)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right)^{\frac{b}{a}} x^{b-1} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 2.7071 b = 2.7071 Weibull fit : MSE = 0.00052932

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

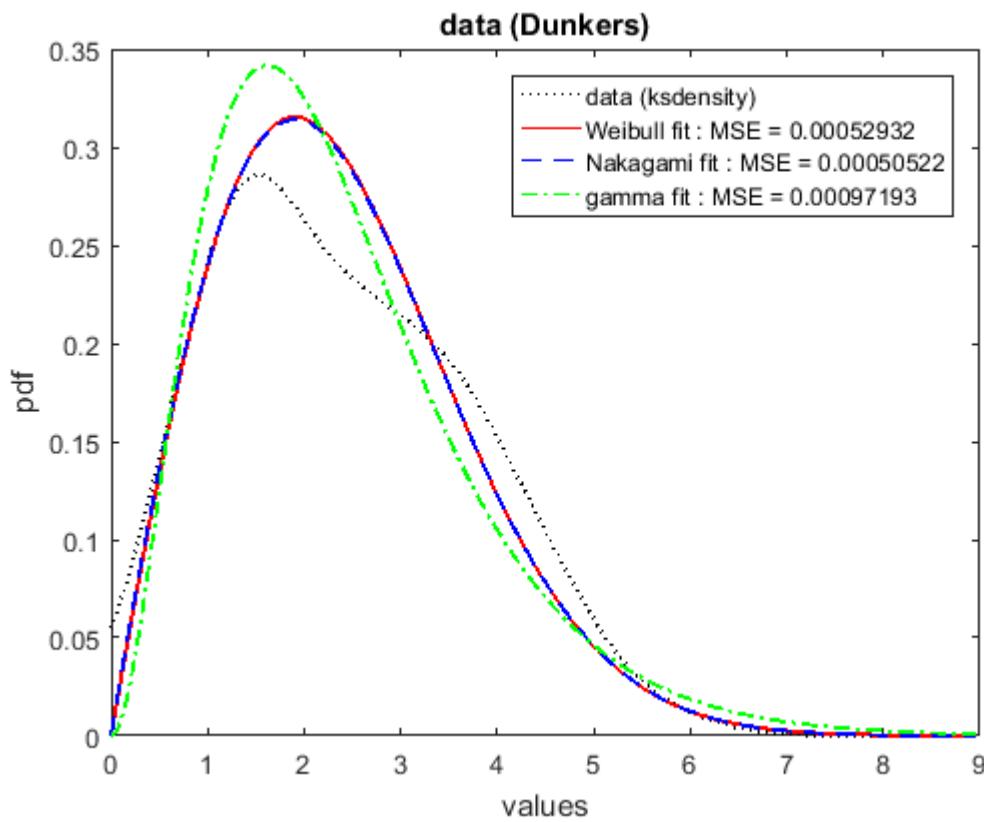
m = 0.98103 Ω = 7.3508 Nakagami fit : MSE = 0.00050522

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 3.0787 b = 0.77813 gamma fit : MSE = 0.00097193

best fit: Nakagami

[p m shankar](#)



data (Dunlap)

```

-1.062 -0.011  0.408 -1.077   0.5   1.002 -1.051 -2.851 -2.415 -1.19
-1.587 -1.639 -2.188  0.593   2.82   1.638 -0.916  0.494  0.857   1.3
 1.263 -2.737  0.644 -0.99   1.146 -0.479 -2.758  2.987 -2.055 -1.836
-0.326 -0.008 -0.834 -3.23  -0.645 -1.763 -4.868 -2.098 -1.792  1.011
-0.981 -1.211 -3.757 -3.868 -1.264 -2.11   1.023 -0.073  0.968 -3.287
-0.518 -2.33   0.606 -2.927 -1.99  -1.921  0.345 -3.283  1.783 -0.954
-1.406 -3.543  0.907 -0.672  1.166 -0.194 -3.264  3.573 -0.449 -0.938
-2.277  0.854 -0.004 -0.546 -0.396  1.436 -1.141 -2.764 -2.561 -5.412
 0.905 -2.412  0.065 -2.232 -1.144 -1.039 -1.252 -2.232 -1.463 -1.293
-0.903 -1.61   0.666  0.794 -2.141 -0.291  1.68   0.861  1.748 -4.222
-3.498  1.224 -1.548 -2.121 -1.377  -3.7  -1.145 -2.224 -0.831 -0.407
-1.675 -1.681 -1.005  0.052 -0.232 -2.096  2.242  0.985  1.325 -0.756
-1.602  2.127 -0.305   2.4   1.102 -0.432 -2.498 -5.071  3.297 -3.128
-0.3   -2.277  1.367 -3.122  0.682 -3.115  1.036  2.927 -2.451 -1.119
-0.845  2.684  1.468  1.861 -0.539 -1.885 -4.966 -1.876 -0.921 -2.049
-2.355  0.62   -1.057 -0.434 -2.727  1.586 -3.203  3.256 -1.342 -2.324
-1.068 -0.188  0.461 -0.414  0.461  0.288 -1.814 -2.274 -2.315 -2.027
 0.369 -0.419 -3.307  2.536  0.934 -2.609  1.878 -2.022 -2.877 -2.713
-0.723  0.03   0.307 -0.798 -0.47  -0.735  2.011 -0.122 -2.048 -3.365
-0.568 -2.285 -2.116 -3.146  1.208 -0.945 -1.505 -0.842  2.96  -1.339

```

p m shankar

data (Dunlap)

Data set contains -ve values

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

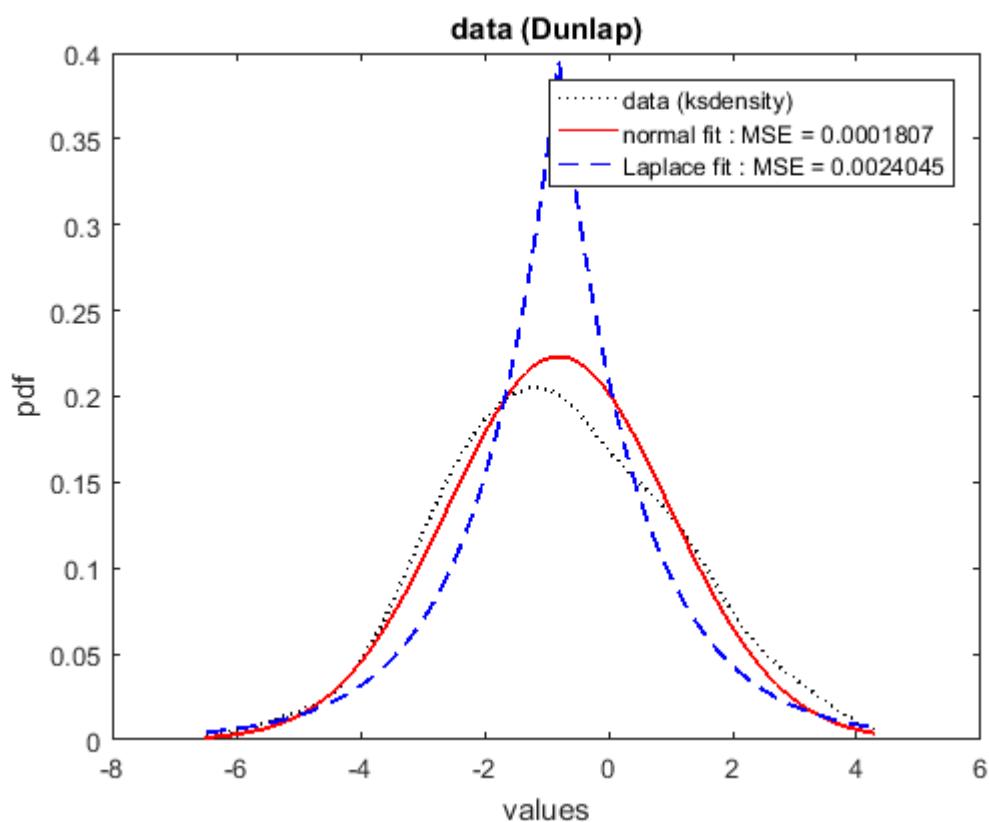
$\mu = -0.80125 \quad \sigma = 1.7868$ normal fit : MSE = 0.0001807

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

$a = -0.80125 \quad b = 1.2634$ Laplace fit : MSE = 0.0024045

best fit: normal

p m shankar



data (Dwyer)

0.376	1.556	1.497	1.207	4.64	2.373	1.603	3.82	1.93	4.541
2.569	5.548	1.259	3.038	1.29	0.995	2.503	2.742	1.52	0.75
2.406	2.468	1.749	1.974	1.235	2.957	1.712	1.097	1.205	2.019
4.312	1.805	3.508	4.755	2.396	0.976	2.326	1.635	4.697	1.971
1.675	3.015	4.21	0.858	4.133	1.834	1.995	3.069	2.059	1.929
0.537	3.124	0.929	1.94	1.719	3.454	1.494	1.387	2.889	2.226
3.829	2.611	1.053	1.346	2.553	0.923	1.777	4.049	1.547	2.111
1.037	2.464	2.604	3.964	2.627	0.484	2.161	3.953	2.902	2.002
3.72	2.192	1.161	0.298	0.41	3.507	1.813	3.177	1.044	1.537
2.844	2.789	4.935	3.974	1.509	4.508	2.537	1.513	2.65	5.109
2.23	3.842	1.855	3.61	2.401	5.292	1.6	2.09	2.117	1.093
1.51	1.803	5.737	0.426	0.733	2.089	1.088	0.898	3.559	1.396
2.596	3.528	3.069	0.422	0.852	1.485	1.013	1.018	2.174	2.183
1.359	2.043	3.045	4.222	5.438	0.654	3.775	2.52	3.127	1.751
2.124	2.781	1.262	6.37	1.044	1.256	0.921	3.823	4.031	1.978
1.196	2.506	2.485	2.309	5.736	2.265	2.519	1.398	1.17	1
1.846	3.066	2.003	0.678	0.751	1.033	4.884	2.485	3.291	2.804
0.465	4.008	1.034	1.318	6.178	0.101	2.498	2.836	1.374	2.824
0.953	3.967	2.028	5.076	0.794	2.602	5.409	2.908	4.181	2.181
2.212	1.543	3.167	2.413	2.561	1.826	7.204	1.755	1.235	5.156

p m shankar

data (Dwyer)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right)^{\frac{b}{a}} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 2.704 b = 2.704 Weibull fit : MSE = 0.00014972

$$f_X(x) = 2\left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

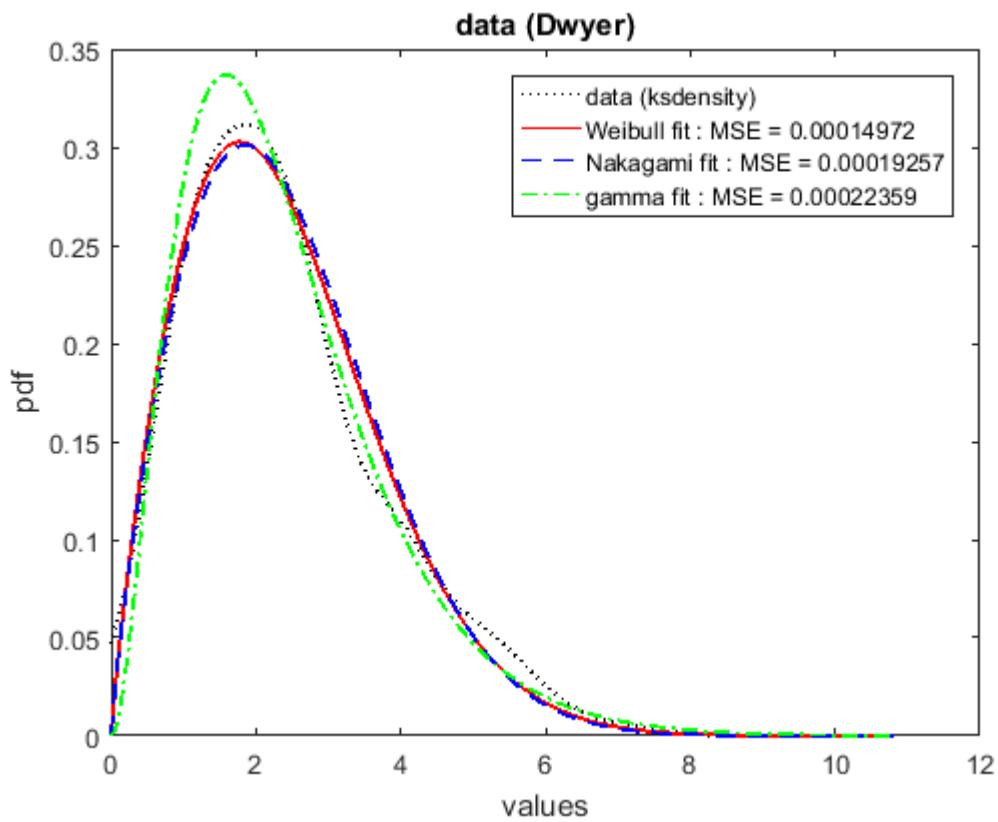
m = 0.91415 Ω = 7.5878 Nakagami fit : MSE = 0.00019257

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 2.9414 b = 0.81445 gamma fit : MSE = 0.00022359

best fit: Weibull

p m shankar



data (Eelman)

```

2.742 -0.388 -2.426  1.079 -2.079  0.831  4.387 -4.801  1.034 -0.901
-3.691 -2.287  1.597 -1.816 -0.816 -0.139  1.584 -4.45 -2.858  1.314
-0.744 -1.054 -1.396   0.1   2.975  2.819  5.992 -2.617  0.303 -2.402
 0.411  0.914 -0.464 -4.11 -1.259 -2.92 -2.953 -1.294 -1.409  0.065
-0.693 -2.703 -2.074 -2.052 -3.694 -0.776 -2.532 -0.638 -1.597  3.857
-0.082  0.617  1.138 -1.776 -2.231  0.567  1.445   0.94  2.033 -5.447
-4.054 -2.981 -1.735 -0.539 -0.289 -3.686  0.683 -1.473 -3.181  1.649
 3.803  1.917  1.697  1.733 -6.01 -0.188   0.57 -4.288 -1.118 -2.223
-2.015 -5.294 -2.719 -0.212 -6.125 -1.608 -0.821 -0.945 -4.032 -2.201
 3.196 -1.102  2.095 -0.153 -3.999 -1.709 -1.318 -0.358 -0.311 -1.112
-0.646 -0.657  0.055  0.139 -1.478 -1.888 -2.046  3.433 -0.113  0.038
-0.097 -0.275 -0.255 -0.551 -2.56 -1.033 -2.264 -1.703 -2.034 -0.247
 0.096 -2.838 -2.219  2.345 -1.15 -0.947 -0.263 -3.212 -1.825  0.721
 1.402 -4.602 -2.567  1.608  1.295   1.61   1.055   -4.3   1.831  1.307
-4.569 -0.095 -0.586 -1.304 -1.218 -4.985 -1.023   -4.94   0.083 -4.112
-1.938 -1.152 -1.034 -0.301 -3.684 -2.974 -1.425  1.156 -2.654  1.019
-0.046 -1.994 -1.023 -2.659 -0.369 -1.345 -1.546  0.636  0.599  0.329
-1.563 -1.74 -3.833 -3.574  1.317 -1.885 -2.193 -2.217 -1.329 -3.357
-0.368  1.583  1.217 -2.878 -1.123 -1.66   0.286   0.873  3.778  1.808
-5.148 -3.495 -2.135 -1.98 -0.885 -0.37 -3.195 -1.566  1.533 -3.692

```

p m shankar

data (Eelman)

Data set contains -ve values

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

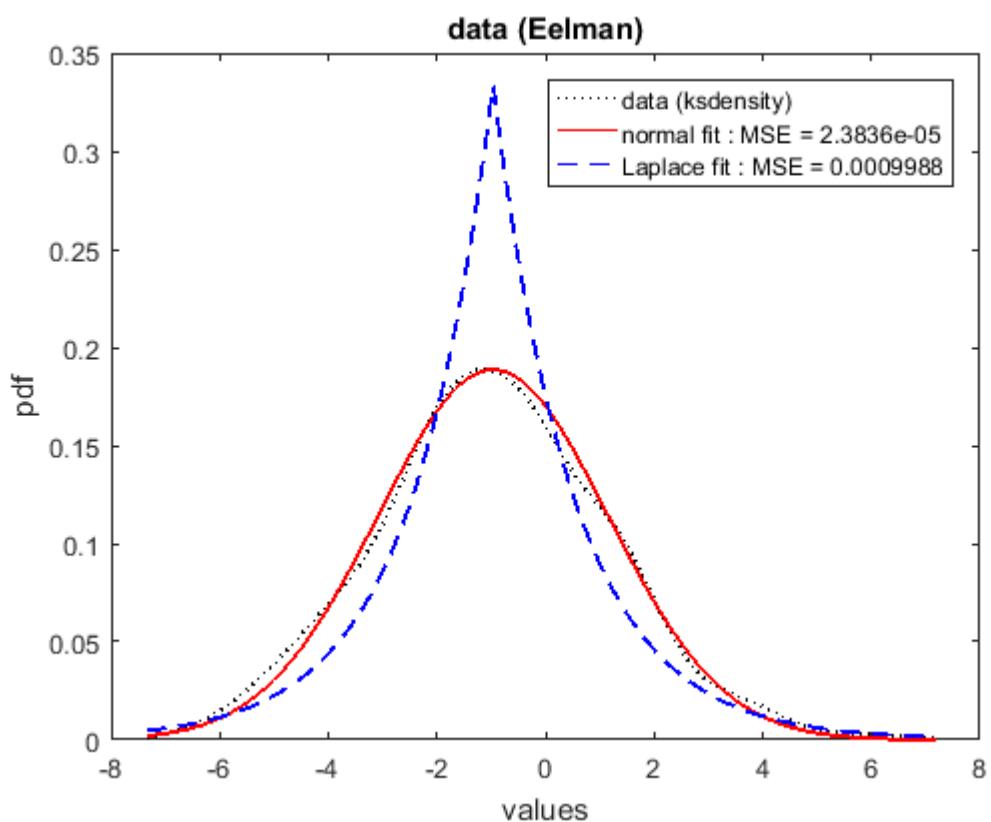
$\mu = -0.9653$ $\sigma = 2.1151$ normal fit : MSE = 2.3836e-05

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

$a = -0.9653$ $b = 1.4956$ Laplace fit : MSE = 0.0009988

best fit: normal

p m shankar



data (Gabel)

1.301	1.212	2.316	1.548	0.793	1.598	2.318	2.448	1.146	2.99
2.422	5.852	1.571	1.893	3.545	4.895	2.063	1.929	2.019	5.305
1.216	3.637	2.034	3.511	2.712	1.749	2.237	3.738	4.542	1.724
3.265	1.525	0.572	1.373	1.517	3.793	2.218	1.656	2.483	0.716
1.726	2.702	3.288	1.531	1.523	1.878	4.085	1.6	0.84	1.553
6.159	3.902	3.046	4.736	4.124	0.765	3.184	0.658	5.197	1.933
5.081	2.268	0.754	3.771	2.636	2.854	2.468	4.229	1.764	2.994
3.876	4.192	4.899	4.422	2.857	2.57	3.02	3.211	1.655	0.662
6.322	3.241	4.32	1.459	0.704	3.103	2.861	3.02	2.176	4.395
1.602	0.565	1.525	3.703	1.335	1.423	2.706	5.404	1.641	1.917
2.562	4.507	2.868	1.412	2.966	1.59	1.54	2.653	2.683	2.468
2.411	4.722	1.705	3.025	1.019	2.106	4.127	2.582	4.168	1.756
1.495	1.925	2.912	3.406	3.345	1.188	2.092	3.691	2.713	1.902
2.088	2.525	4.774	1.397	3.255	4.841	3.887	1.812	4.19	4.803
3.51	3.572	1.041	5.454	1.177	1.881	3.057	3.334	2.413	2.503
2.087	3.771	2.428	0.966	1.162	3.574	1.812	3.471	1.223	3.172
2.527	1.564	4.809	2.46	4.699	2.496	3.219	2.379	3.371	1.53
1.478	1.543	2.16	1.659	1.515	2.014	2.816	2.419	3.417	1.63
1.096	1.918	3.218	0.586	1.473	2.969	2.138	1.992	1.661	6.553
2.704	1.613	2.882	2.341	2.763	4.326	3.399	0.804	3.452	1.232

p m shankar

data (Gabel)**Data set is completely positive**

$$f_X(x) = \left(\frac{b}{a}\right)^{\frac{b}{a}} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 2.9725 b = 2.9725 Weibull fit : MSE = 0.00017422

$$f_X(x) = 2\left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

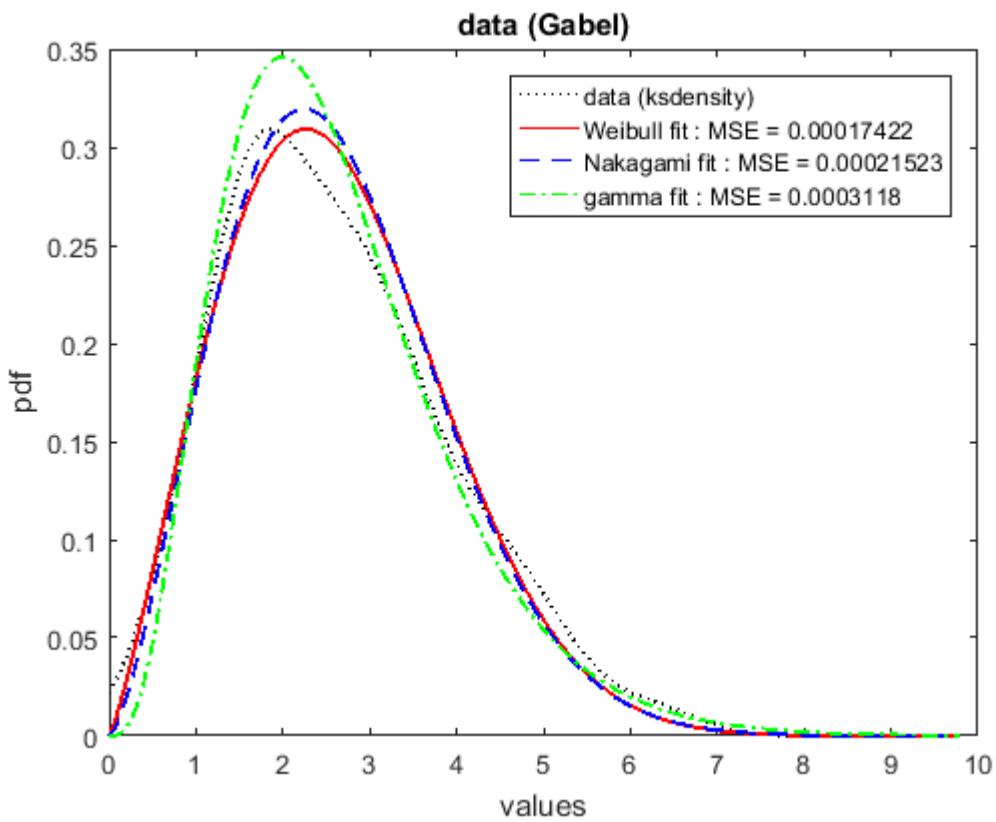
m = 1.2252 Ω = 8.4951 Nakagami fit : MSE = 0.00021523

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 4.1405 b = 0.63393 gamma fit : MSE = 0.0003118

best fit: Weibull

p m shankar



data (Gallagher)

```

-2.018 -2.028 1.977 0.46 1.686 0.529 0.391 -0.168 -0.891 -1.654
0.466 -0.014 -1.391 1.184 -3.325 0.282 -0.994 1.181 -0.287 -0.685
1.906 -3.211 0.954 -2.093 -1.372 -2.434 1.346 -0.943 -1.157 -0.486
-0.03 0.256 0.117 -0.842 -1.485 -0.742 -0.869 -6.362 -1.086 0.225
-2.46 1.688 -1.907 -2.635 -1.643 -2.2 -3.7 -4.414 -1.283 -1.625
-0.61 0.053 -3.156 -2.047 -0.083 -3.727 -0.914 -0.693 0.527 -0.789
-2.114 -3.67 -3.175 -2.704 -0.418 2.392 0.546 1.489 -5.138 -2.074
-1.334 -0.326 -2.538 -3.106 -2.813 0.559 0.791 -1.882 0.945 -2.783
1.808 -2.984 2.974 0.162 -3.935 1.882 -3.037 -3.101 -0.994 -0.042
1.507 -3.099 -3.246 -3.458 -1.402 -3.026 -1.261 0.609 0.393 -1.745
-0.57 -3.483 -1.623 -1.626 -2.762 1.515 -0.969 -1.711 -1.348 -0.69
-1.886 -2.959 0.295 1.735 -0.322 -0.385 -2.74 0.533 -0.208 2.032
-0.332 -0.448 -0.257 1.208 -0.021 -6.828 -1.437 -2.533 -0.179 1.753
1.493 2.07 -1.236 -2.671 -4.63 -2.93 -1.718 -0.491 0.1 -2.435
-2.243 0.855 -2.711 -1.413 -1.046 -1.361 -0.104 -3.462 -4.054 -1.749
-1.663 -5.992 1.451 1.011 1.399 -2.554 -3.913 -1.756 -3.202 0.009
1.411 2.02 -3.055 -2.152 1.701 -2.046 0.862 1.672 2.018 0.424
-1.578 -2.378 -0.758 -5.665 -2.334 -0.497 -2.819 -1.756 1.621 -2.586
-0.562 0.442 -1.11 -1.033 -0.354 -3.039 -0.209 -0.311 -0.268 0.85
-0.759 -1.661 1.116 -1.501 1.343 -1.961 -1.346 -2.178 0.39 -1.554

```

p m shankar

data (Gallagher)

Data set contains -ve values

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

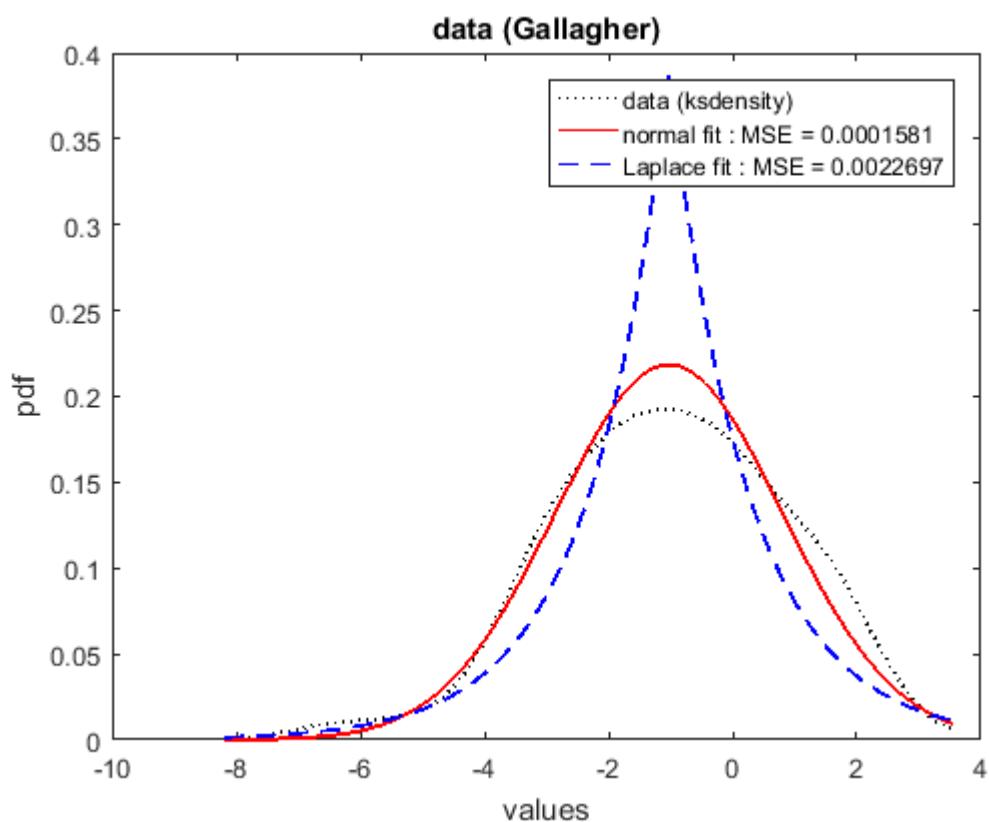
$\mu = -1.0268$ $\sigma = 1.8254$ normal fit : MSE = 0.0001581

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

$a = -1.0268$ $b = 1.2908$ Laplace fit : MSE = 0.0022697

best fit: normal

p m shankar



data (Gish)

1.156	2.313	4.058	2.32	2.384	2.358	1.858	4.923	2.672	4.365
1.676	1.951	3.54	5.555	1.791	2.174	3.814	1.743	3.756	2.201
2.651	3.183	3.223	3.049	1.993	1.949	3.373	2.608	1.97	3.072
1.001	1.805	2.422	0.876	1.118	2.12	1.319	4.526	1.361	1.234
3.475	2.158	7.211	3.509	1.464	1.369	1.301	4.211	0.688	2.047
1.77	1.135	0.961	4.111	0.809	2.57	2.37	3.034	0.855	4.447
2.188	2.544	1.507	2.304	2.897	1.653	4.294	2.149	2.351	1.305
1.605	5.213	2.829	0.719	1.575	0.707	4.232	4.807	3.17	1.866
1.602	0.529	2.621	4.532	3.684	0.483	3.115	2.285	2.808	0.526
1.401	0.391	1.543	5.088	1.802	1.061	2.667	1.233	3.588	2.423
1.242	1.166	2.455	5.1	2.531	2.206	1.497	5.846	3.632	0.629
3.177	3.626	1.168	1.257	1.001	1.887	1.653	4.145	1.817	1.408
1.959	1.484	0.635	0.911	2.391	1.247	1.391	5.306	2.545	4.064
1.09	3.493	1.747	3.914	4.781	4.654	2.484	2.936	1.924	3.163
3.524	0.682	3.233	3.657	5.4	0.9	3.512	1.732	2.233	5.141
2.413	1.26	1.689	3.592	3.536	3.237	2.677	0.742	0.991	1.857
1.793	2.332	3.43	1.683	2.945	1.915	1.806	2.431	2.843	3.464
0.469	2.294	2.899	0.797	1.627	2.076	2.501	3.14	2.547	1.092
1	3.67	4.024	2.454	2.226	1.264	0.819	4.198	1.862	2.259
0.383	2.125	3.084	3.058	2.561	2.469	3.184	1.735	1.89	6.015

p m shankar

data (Gish)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right)^{\frac{x}{a}} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 2.7735 b = 2.7735 Weibull fit : MSE = 7.7434e-05

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

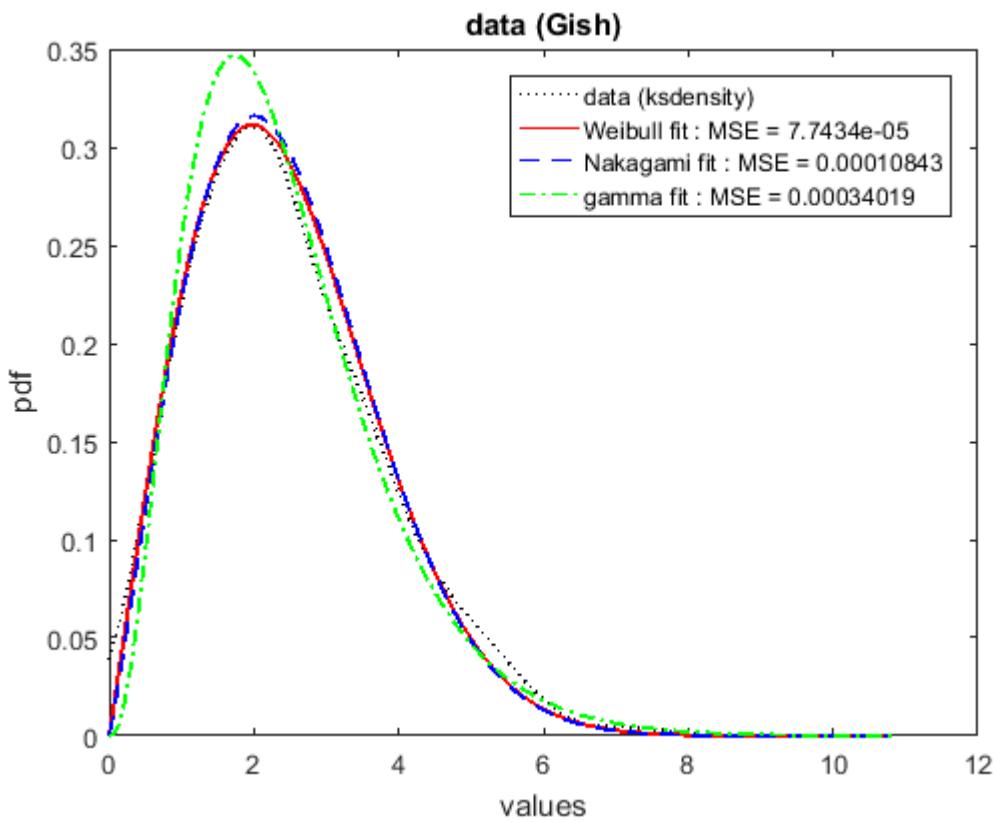
m = 1.0498 Ω = 7.6568 Nakagami fit : MSE = 0.00010843

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{a-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 3.4462 b = 0.7112 gamma fit : MSE = 0.00034019

best fit: Weibull

p m shankar



data (Hammer)

```

-0.499 -2.594 1.203 -1.919 -2.468 -3.178 -2.397 0.825 1.382 -1.099
-1.121 -1.696 -1.117 1.281 -3.317 0.102 -1.121 4.063 -0.139 0.807
-1.076 -0.057 -3.485 0.368 -0.196 -3.309 -0.972 -0.702 -4.73 -6.584
-1.445 -4.99 -1.149 0.928 1.996 0.794 0.555 1.259 -2.266 -1.596
0.613 -2.838 -4.723 -0.492 -1.333 -1.615 -2.277 -4.728 -2.245 0.228
-3.295 0.97 -4.909 -2.128 1.206 2.307 -3 0.485 -2.273 3.595
0.454 -0.6 -1.37 3.264 -2.433 -3.326 -2.771 0.308 -0.571 -3.325
-0.015 -2.619 -5.745 -4.608 1.123 -1.478 -4.626 0.634 -1.545 1.006
-0.538 -3.346 0.613 0.423 1.264 -0.855 -1.61 -2.315 4.337 4.187
2.414 1.379 -2.898 2.818 -1.548 -0.268 -2.042 -2.201 -0.216 -3.991
1.985 -2.404 -2.349 -2.617 -1.119 -0.14 -5.032 0.028 1.463 -1.1
-1.208 -2.643 1.282 -2.623 -1.71 0.126 -3.134 -5.45 -1.056 2.876
0.84 0.152 -2.652 -1.24 -0.778 -0.884 -2.044 -2.588 1.759 -1.633
-3.536 -3.164 -3.637 0.654 -2.102 -0.977 -3.166 0.972 -1.438 -0.135
-0.083 -0.811 1.202 -1.628 0.687 2.322 3.665 -0.671 -3.636 -0.398
2.887 1.249 -4.417 -2.493 -1.014 -1.867 1.781 -0.572 -3.282 1.907
-1.941 2.978 3.333 0.516 -1.633 -0.801 -2.334 -1.856 -0.413 -2.219
-2.711 -2.679 0.25 -2.118 -0.12 -2.399 -3.443 -1.632 0.022 1.11
3.836 -0.322 0.218 -2.306 -3.171 -1.067 -2.631 -5.285 -1.863 -1.889
-2.066 0.048 -0.819 -1.841 -1.14 -5.376 2.314 -9.647 -3.023 -4.077

```

p m shankar

data (Hammer)

Data set contains -ve values

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

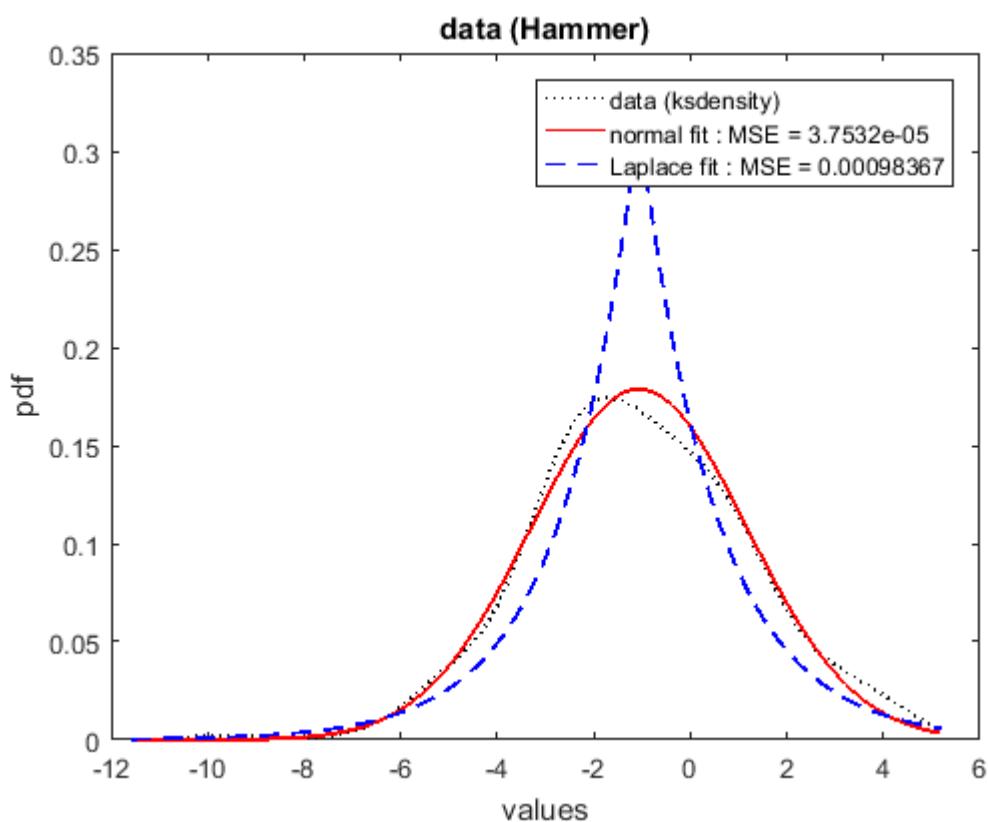
$\mu = -1.0627$ $\sigma = 2.2323$ normal fit : MSE = 3.7532e-05

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

$a = -1.0627$ $b = 1.5785$ Laplace fit : MSE = 0.00098367

best fit: normal

p m shankar



data (Harman)

4.404	1.518	1.199	4.964	2.58	3.23	3.776	4.316	5.198	1.65
0.647	0.938	1.045	4.477	1.663	0.878	5.489	3.474	2.085	2.231
1.759	2.825	0.968	1.581	0.784	0.608	3.198	1.169	5.246	2.258
0.971	2.129	6.221	1.893	2.427	0.987	2.416	0.989	3.297	2.507
1.025	1.089	5.253	3.206	3.367	3.317	1.669	3.678	0.988	6.755
1.124	1.018	4.058	1.699	0.719	3.261	0.585	3.905	1.245	2.955
1.832	1.675	2.283	1.017	0.548	4.173	0.769	3.831	2.185	3.563
1.267	0.786	1.923	2.135	2.135	1.729	4.187	1.393	3.216	0.955
2.456	2.016	1.453	4.1	0.419	1.76	1.004	1.702	3.332	3.621
1.597	2.487	1.008	0.709	1.548	4.454	4.182	1.948	1.063	5.237
0.651	1.317	1.385	0.9	5.157	3.716	0.889	0.074	2.567	1.553
3.052	1.257	1.806	3.388	3.566	3.32	1.95	4.559	3.296	0.933
2.375	0.935	0.829	3.642	2.478	3.213	2.813	3.145	3.772	0.351
2.655	3.751	1.808	2.64	4.932	1.767	0.595	1.712	3.331	2.683
2.035	2.493	1.616	0.832	1.826	2.838	1.987	0.558	2.389	1.299
3.111	1.594	2.847	1.025	2.896	2.291	2.167	2.052	2.409	0.145
6.047	3.476	2.776	1.132	2.231	2.451	2.519	3.529	3.089	2.278
5.172	3.064	2.48	1.262	7.815	4.527	4.455	4.304	1.174	2.848
1.818	0.669	3.573	0.75	3.7	6.474	2.191	0.627	1.642	1.822
3.555	2.427	1.109	5.801	4.611	3.63	1.453	2.333	1.425	2.854

[p m shankar](#)

data (Harman)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right)^{\frac{b}{a}} x^{b-1} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 2.7628 b = 2.7628 Weibull fit : MSE = 0.00012139

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

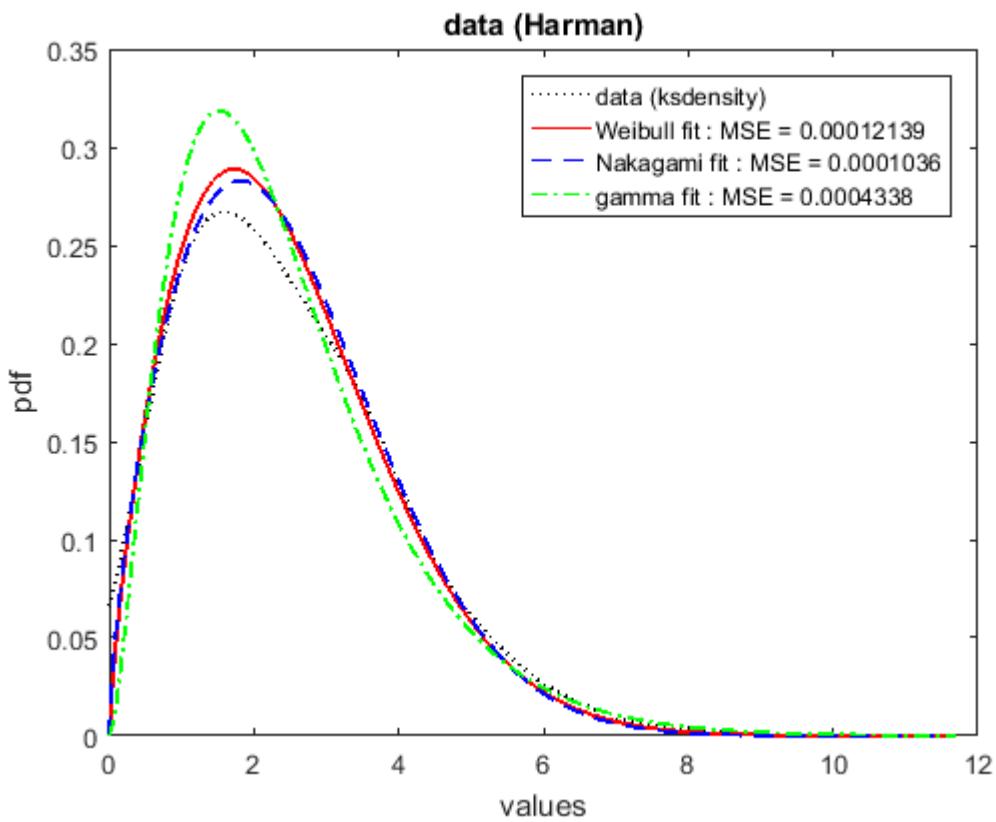
m = 0.84111 Ω = 8.1165 Nakagami fit : MSE = 0.0001036

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 2.6369 b = 0.93077 gamma fit : MSE = 0.0004338

best fit: Nakagami

[p m shankar](#)



data (Hasan)

```

-2.349 -2.241 -1.809 -0.114 -0.713 0.236 -0.475 -1.4 -1.38 0.839
0.962 1.678 -0.952 -0.777 -4.168 -2.606 -1.657 -2.228 1.321 0.549
1.323 -0.789 -5.906 -1.192 -1.991 -1.762 -4.289 -0.957 -3.312 -2.438
-2.774 -1.52 -1.858 -0.523 -3.052 0.733 1.03 -2.824 -2.559 -1.115
-2.463 3.441 2.28 -1.18 0.142 -2.244 1.292 -0.028 -0.155 0.243
-1.588 -0.363 1.358 -3.502 -1.167 -3.242 -0.683 2.042 -1.216 0.283
-0.081 -0.722 -3.446 -3.5 -0.551 -1.631 -1.402 -1.787 0.975 -2.441
2.145 -0.833 -2.51 -0.457 -2.714 -1.579 0.974 -1.226 0.354 -1.978
1.01 0.879 -1.338 0.664 0.302 -0.582 0.825 -0.62 4.107 3.634
1.64 0.149 -0.274 1.212 0.215 -1.867 -0.853 -1.084 -2.832 -2.171
-5.243 0.234 -2.655 1.142 -2.382 1.513 -4.727 -2.972 -1.722 -4.793
1.979 -0.908 -0.6 -1.591 -3.623 -0.343 -1.479 -1.85 -0.778 -4.072
-2.938 -1.751 1.163 0.557 -3.117 1.089 -2.106 0.099 0.3 -3.75
0.777 -3.25 0.456 -1.329 -2.823 1.407 1.985 -2.41 -0.092 1.033
0.688 -1.574 -1.293 -1.626 -2.748 -3.964 -0.769 -3.039 -2.71 -2.913
0.856 -4.055 0.765 -0.379 1.894 -3.359 -3.104 1.203 2.018 -1.542
-2.476 -0.845 -0.427 0.506 -2.489 -1.228 -2.662 -3.625 0.619 -4.002
-2.453 -2.477 -3.462 -1.328 -1.169 2.69 -0.576 -5.092 0.194 -2.066
-1.268 -1.977 -0.855 -3 -0.56 -1.248 -0.36 0.454 -1.301 0.179
0.116 -3.126 -2.102 -2.173 -0.288 1.349 -2.333 -0.902 -2.244 -3.604

```

p m shankar

data (Hasan)

Data set contains -ve values

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

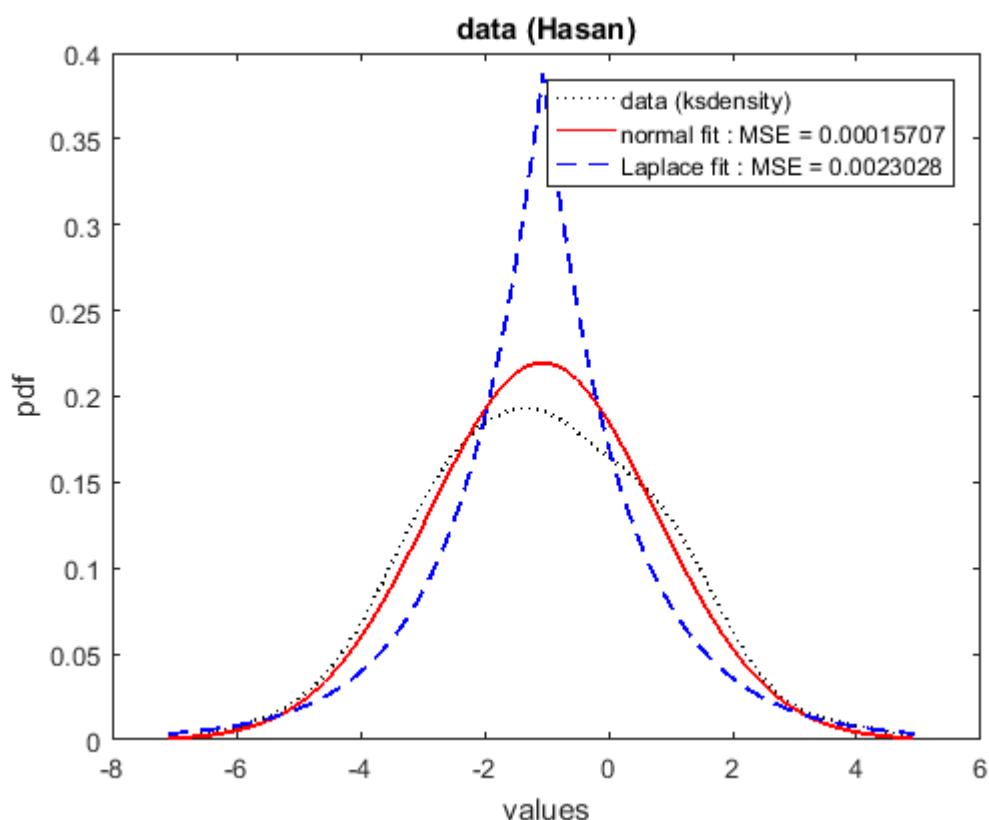
$\mu = -1.0602$ $\sigma = 1.8167$ normal fit : MSE = 0.00015707

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

$a = -1.0602$ $b = 1.2846$ Laplace fit : MSE = 0.0023028

best fit: normal

p m shankar



data (Hoque)

1.948	2.235	2.915	4.23	2.848	3.379	2.588	1.523	0.886	1.553
1.675	3.262	2.86	1.57	2.042	1.487	2.663	1.64	3.054	1.327
1.474	1.093	4.143	1.227	2.52	1.385	4.217	6.108	3.081	3.016
1.06	2.404	2.918	2.414	4.144	2.695	1.126	3.639	2.737	2.874
2.849	1.74	1.432	0.892	3.139	3.254	5.454	2.994	3.435	1.436
1.308	2.393	2.1	1.869	1.847	3.006	3.142	2.435	3.501	2.973
6.021	1.316	1.204	2.112	1.426	4.586	3.15	1.394	2.55	0.454
1.329	5.796	2.825	2.417	4.419	4.276	2.139	1.253	0.83	3.607
4.95	2.622	4	2.745	2.208	1.55	4.719	2.743	1.608	2.124
1.861	2.078	3.532	1.682	2.605	0.644	4.01	2.247	1.805	2.694
5.621	3.921	3.556	3.948	2.834	2.099	1.863	1.589	2.675	2.369
1.614	3.03	5.928	1.266	1.69	1.73	1.379	1.776	1.515	3.335
4.392	0.247	2.56	2.949	2.978	1.755	1.391	1.739	2.474	1.399
2.685	1.154	3.017	1.839	2.283	1.271	3.527	3.051	1.2	2.104
3.397	2.785	3.639	4.624	3.62	2.264	4.743	1.273	2.34	1.852
2.933	2.579	2.023	5.322	1.853	0.779	3.631	2.457	0.913	0.837
1.3	1.484	1.069	1.156	1.401	1.365	2.234	1.106	2.885	2.611
0.724	2.637	1.153	3.634	1.327	3.932	1.23	1.031	2.265	1.237
1.902	4.371	2.556	0.937	3.902	2.466	4.173	4.04	6.479	4.298
1.885	2.01	2.693	1.795	2.822	2.78	0.901	3.053	0.417	0.622

p m shankar

data (Hoque)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right)^{\frac{x}{a}} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 2.8199 b = 2.8199 Weibull fit : MSE = 0.00010693

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

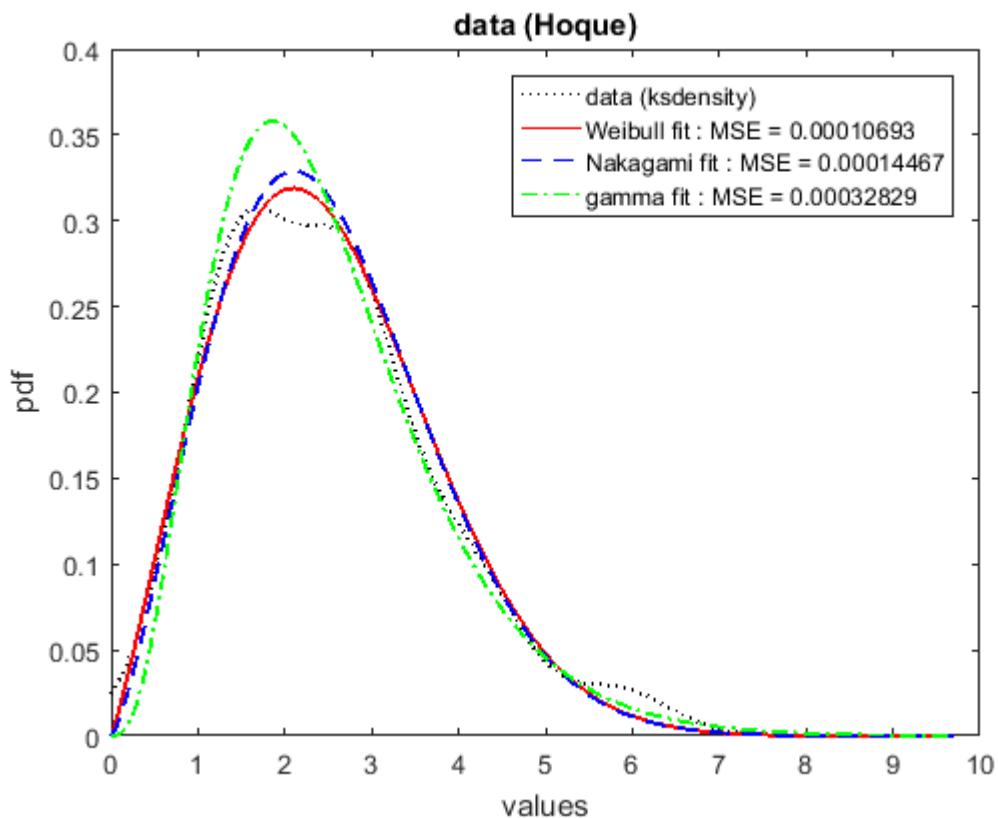
m = 1.1729 Ω = 7.7266 Nakagami fit : MSE = 0.00014467

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 3.9454 b = 0.63135 gamma fit : MSE = 0.00032829

best fit: Weibull

p m shankar



data (Huynh)

```

-2.917 1.981 -1.458 -2.087 3.409 -0.48 2.423 0.015 -2.477 0.174
-1.518 -2.807 -4.986 -1.41 -0.07 -0.993 -1.537 -4.963 -1.973 0.209
-1.347 -0.464 -1.655 0.155 -1.591 -2.153 -1.444 1.076 -0.572 -1.651
-2.038 -2.416 -2.988 0.75 0.039 -0.9 -0.635 -0.207 -1.064 -2.384
-2.393 0.611 -0.861 -0.889 -3.08 -1.09 0.485 1.244 0.071 -3.029
0.938 -0.028 -1.669 -4.598 -0.311 -0.462 -0.912 -0.991 2.085 -1.259
0.992 -6.112 -0.301 -2.431 -3.43 -2.834 -1.593 0.576 -4.759 -1.459
-3.412 -2.795 0.858 -2.39 -0.485 -1.871 -0.29 -2.034 1.447 -2.204
-0.064 -3.209 -1.778 -2.424 0.475 -3.149 -2.17 -0.507 0.39 -4.199
-3.384 -4.092 -3.493 -1.027 -4.612 -1.648 -1.869 1.288 -2.087 -1.026
2.369 0.301 -2.747 -1.177 1.167 0.071 -1.476 -4.227 -4.691 -0.68
3.623 0.696 0.169 1.385 -1.884 -0.892 -1.002 -2.139 -0.257 -1.47
-4.114 -0.315 2.6 -1.644 -0.456 1.587 -1.775 2.913 -1.732 -3.354
-0.088 3.045 -4.604 -2.004 -1.79 5.051 -5.731 -3.003 -2.066 -5.784
-3.335 -4.321 2.111 1.375 -2.31 -1.36 1.473 -0.549 0.126 -0.181
-2.386 2.258 -0.083 -1.135 2.606 -2.783 -3.971 -1.273 -0.328 -4.072
-0.872 0.898 -0.349 -0.691 0.394 -0.557 -1.204 -2.859 -1.814 -0.306
0.574 0.509 0.527 -1.04 -2.019 -1.644 -2.807 0.854 -3.56 -2.888
-2.157 -3.64 0.1 0.06 -2.487 -3.548 -1.065 -1.852 3.847 -0.892
-2.291 0.12 0.962 -1.302 -1.84 -1.507 1.052 -2.543 -1.306 -0.665

```

p m shankar

data (Huynh)

Data set contains -ve values

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

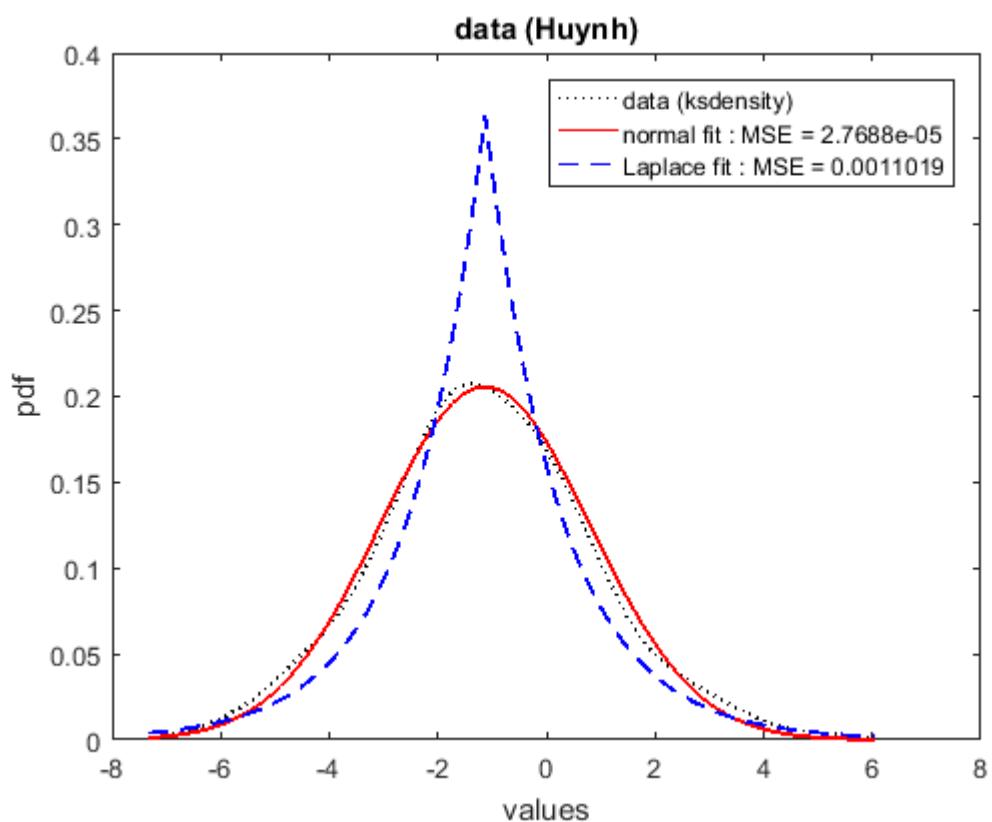
$\mu = -1.1314$ $\sigma = 1.9404$ normal fit : MSE = 2.7688e-05

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

$a = -1.1314$ $b = 1.3721$ Laplace fit : MSE = 0.0011019

best fit: normal

p m shankar



data (Jacob)

1.256	3.892	3.378	0.494	3.353	3.362	3.197	2.475	0.958	3.881
6.826	4.897	1.419	3.087	1.466	1.671	0.848	1.575	0.604	1.649
2.628	1.32	3.053	2.408	2.851	0.698	1.158	2.073	0.634	2.811
0.981	3.482	1.258	1.394	3.349	5.026	5.329	2.111	0.373	2.753
0.617	2.266	2.994	2.232	2.752	1.435	2.01	2.4	0.361	4.873
1.443	1.385	2.834	3.571	3.731	1.504	1.62	0.671	2.925	5.036
2.713	0.569	1.062	1.324	3.33	2.789	4.48	2.872	1.479	1.25
4.538	4.453	3.536	1.811	3.963	1.346	2.64	3.845	1.4	2.499
3.083	1.449	3.739	1.759	1.455	3.017	2.407	2.187	2.34	0.647
0.64	2.875	0.83	1.437	2.467	1.202	1.755	4.169	2.89	4.087
0.875	2.674	2.385	1.95	4.477	3.256	1.857	3.737	3.373	2.005
0.119	4.219	0.489	4.911	1.736	0.816	3.171	1.928	5.34	2.86
1.574	2.912	4.592	0.421	4.169	1.927	2.507	4.834	2.693	3.823
4.811	4.115	3.772	3.957	0.054	2.748	3.214	0.771	1.642	0.852
2.747	4.751	2.708	0.524	2.043	2.377	2.362	2.19	4.12	1.04
1.537	4.461	1.829	0.668	2.123	1.533	0.785	1.217	5.587	1.921
0.825	0.361	2.452	1.734	2.963	2.411	5.654	2.723	2.152	5.575
2.385	2.16	0.998	2.377	3.824	3.861	2.593	3.102	2.202	2.13
1.6	2.41	1.451	3.393	1.516	4.47	3.563	4.152	4.145	2.341
3.103	3.54	4.863	3.705	0.436	2.084	0.904	3.666	2.656	1.849

p m shankar

data (Jacob)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right)^{\frac{x}{a}} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 2.8197 b = 2.8197 Weibull fit : MSE = 0.00030253

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

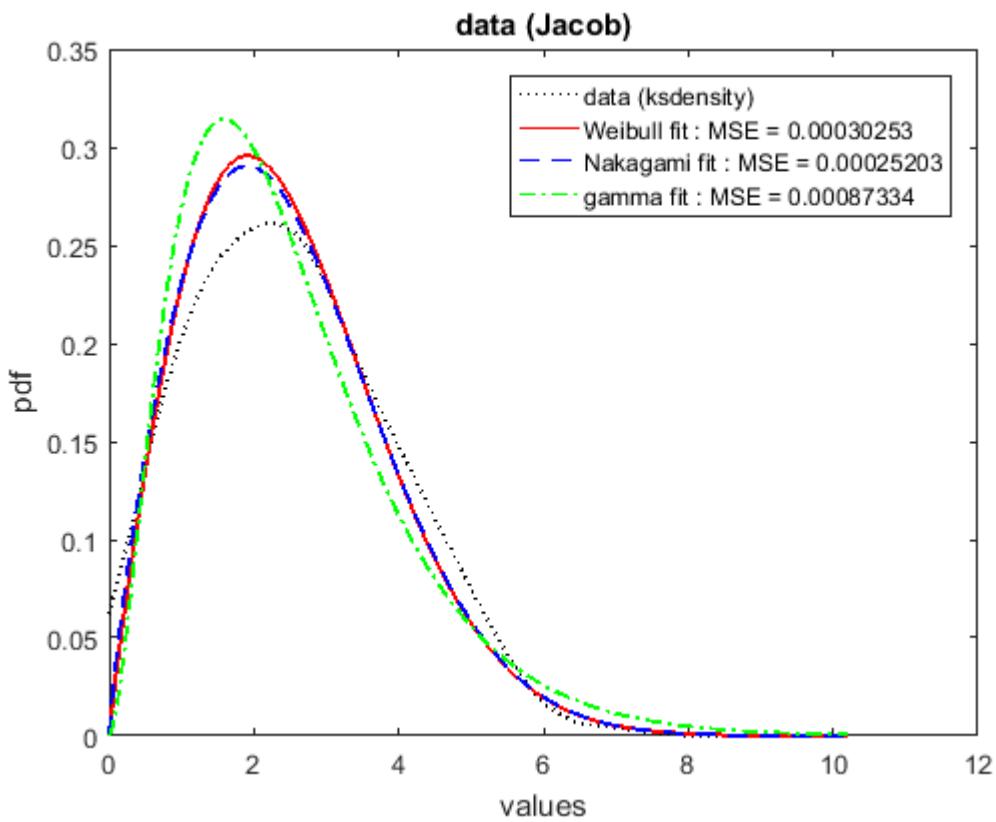
m = 0.90526 Ω = 8.1026 Nakagami fit : MSE = 0.00025203

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 2.711 b = 0.92473 gamma fit : MSE = 0.00087334

best fit: Nakagami

p m shankar



data (Jiang)

```

-2.61  1.109 -3.106  0.069 -1.364 -4.63 -0.058 -1.309  1.41  1.014
-1.683 -0.862  0.598 -2.869 -1.572  0.218 -1.657  2.111 -1.507  1.792
 1.426 -0.174 -0.766  0.099 -4.03  4.444  0.011 -1.915  1.464  0.932
 0.828  4.657 -2.621 -3.121  0.621 -0.993 -0.126  1.747 -0.649  1.102
 4.137 -0.101 -2.051  1.215 -3.177 -2.082 -1.87 -2.611  2.309  0.265
 -1.562 -0.181 -1.35  0.713 -2.533 -1.499  0.165 -4.357 -0.046 -2.131
 -1.55  2.602  0.04  0.682 -2.359  0.297 -3.469 -0.433  0.232 -2.867
 0.116  2.303 -1.325 -0.276 -2.364 -0.75  0.386  1.793  1.918 -1.527
 -1.656 -0.766 -0.967  0.088 -0.563 -4.737 -0.328  3.054 -1.523 -1.058
 2.174  0.561 -1.918 -2.816  0.49 -0.732 -2.599  4.104  0.352 -3.51
 1.359 -1.198 -0.102 -0.544  2.409 -0.325 -2.364 -1.15  0.904 -1.607
 -0.83  -2.98  -4.62 -1.312 -3.471 -1.258 -5.613  1.512 -2.284 -3.524
 1.304 -0.223  1.742 -2.838 -2.328  1.177  2.563 -2.128 -2.082 -3.354
 0.782  0.065 -0.152  0.981 -0.401 -0.736 -0.647 -1.701 -0.026 -0.363
 -0.323 -0.262 -2.023 -4.088  0.929  1.676 -1.81  0.929 -2.317  3.588
 0.646  1.118  0.3  2.158  0.493 -1.908 -5.086 -0.261  0.516 -1.685
 0.848 -2.032  1.632 -1.688 -4.497 -6.566  0.255 -3.232  1.416 -1.885
 -0.676 -2.945 -0.658  0.291 -1.073 -2.067 -2.486 -4.472 -0.95  0.168
 -3.863  3.21 -0.664  0.957 -1.753 -1.795  0.361 -3.106 -0.148 -0.087
 -0.3 -2.081 -2.384  1.633 -0.623  1.439 -1.482 -1.3 -1.836 -2.748

```

p m shankar

data (Jiang)

Data set contains -ve values

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

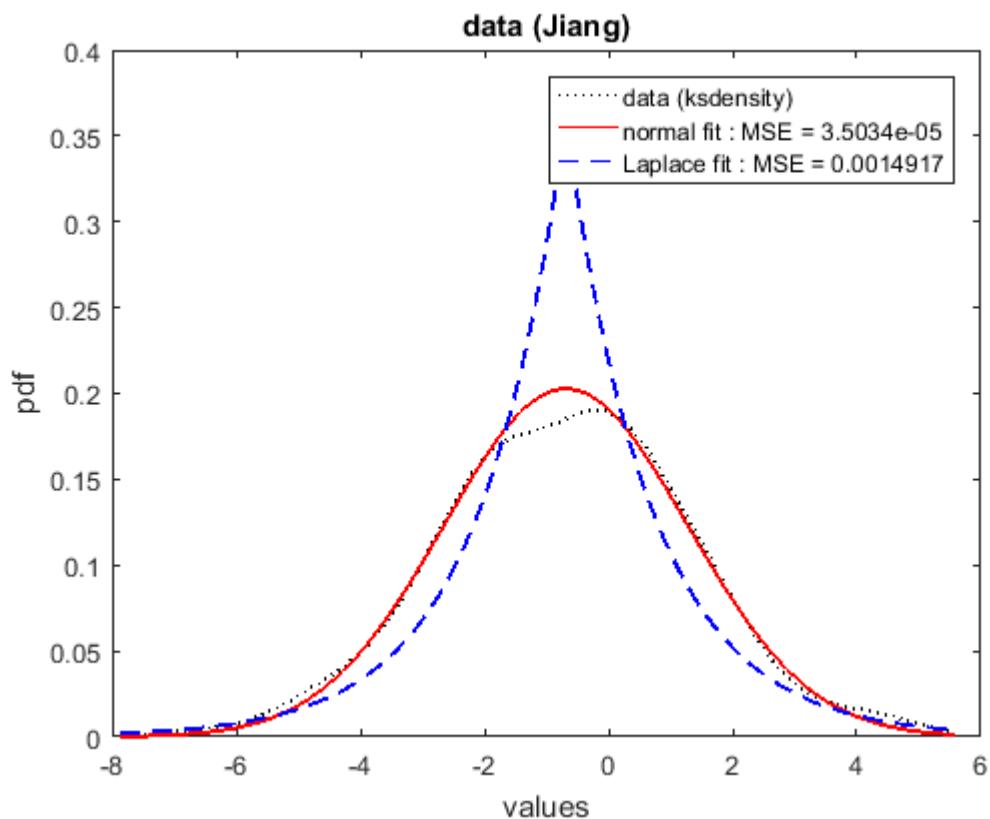
$\mu = -0.6879$ $\sigma = 1.9687$ normal fit : MSE = 3.5034e-05

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

$a = -0.6879$ $b = 1.3921$ Laplace fit : MSE = 0.0014917

best fit: normal

p m shankar



data (John)

4.401	2.261	2.58	2.658	2.879	0.39	5.411	2.085	3.07	1.466
3.385	0.472	1.228	1.499	1.793	1.881	3.999	2.036	4.439	2.25
3.748	1.713	2.131	2.546	2.071	1.47	1.221	2.62	1.809	1.413
3.317	3.522	1.486	0.246	4.027	1.883	3.701	1.576	3.434	0.545
4.106	1.259	2.67	0.235	4.164	2.526	1.599	3.544	2.208	2.714
3.29	1.283	3.232	0.797	0.584	0.609	0.521	4.663	2.404	4.672
1.738	1.676	1.656	5.896	3.011	3.898	1.985	3.462	1.928	1.44
4.684	1.716	0.629	5.828	2.532	0.675	1.512	1.537	5.568	3.714
2.069	4.284	1.609	5.728	1.472	1.496	2.229	1.329	2.234	1.06
1.767	0.967	2.289	0.096	2.511	3.681	2.998	4.686	0.567	1.83
1.572	3.051	5.124	3.197	3.167	2.403	2.879	0.774	1.506	1.242
1.417	1.926	2.324	2.627	1.75	3.577	2.178	1.137	2.054	2.407
2.894	2.527	2.266	4.761	3.657	1.341	4.643	0.514	3.569	1.229
1.322	0.545	2.093	2.274	3.139	2.093	4.895	4.455	3.343	2.567
2.082	2.357	1.294	0.671	1.914	3.589	3.344	3.086	1.598	1.613
0.29	2.193	2.659	2.803	1.473	1.398	1.669	2.229	2.55	1.672
2.724	1.201	1.494	1.691	1.288	2.321	4.419	1.814	1.027	2.023
1.734	1.522	2.752	3.137	3.467	0.449	3.555	3.213	3.074	4.849
0.95	3.222	1.065	4.113	1.174	2.533	1.325	3.266	3.402	1.135
3.971	1.319	0.413	2.5	2.552	4.599	2.643	3.321	4.062	2.137

p m shankar

data (John)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right)^{\frac{b}{a}} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 2.706 b = 2.706 Weibull fit : MSE = 0.00016626

$$f_X(x) = 2\left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

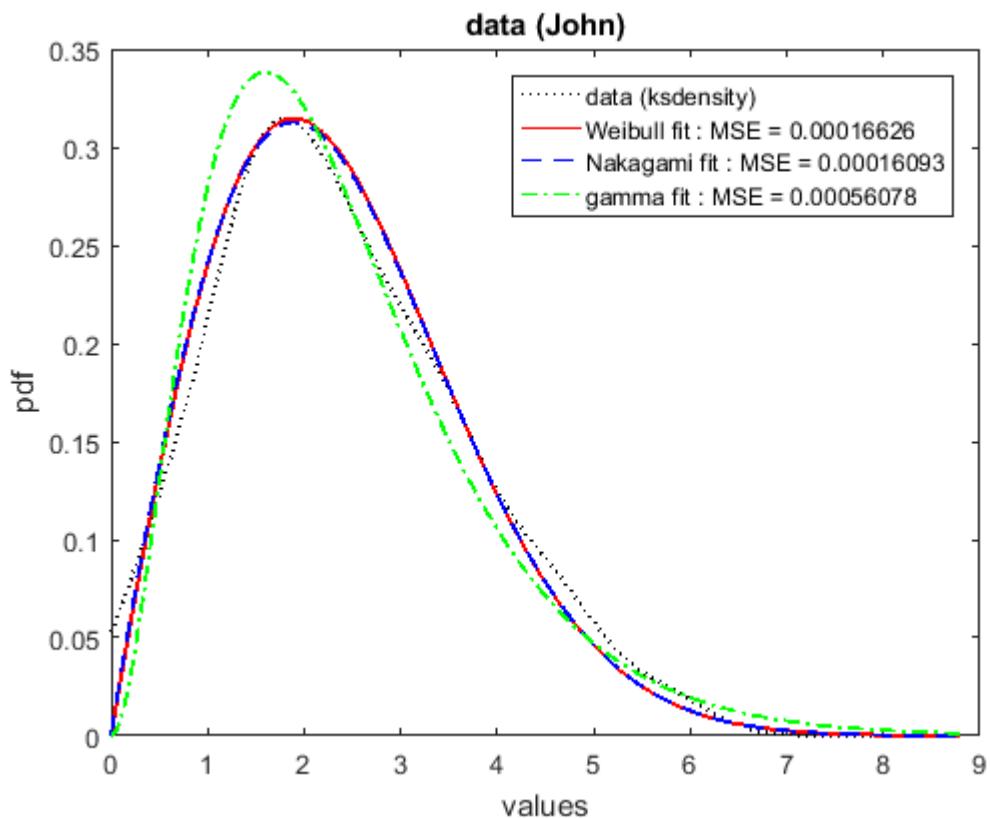
m = 0.97161 Ω = 7.3576 Nakagami fit : MSE = 0.00016093

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 2.999 b = 0.80044 gamma fit : MSE = 0.00056078

best fit: Nakagami

p m shankar



data (Karch)

```

-0.387  0.014-2.307 -5.267  2.258  0.521  6.724 -1.931 -2.881 -6.085
 3.502 -5.622-2.724 -1.902 -1.125 -4.664  0.476 -2.786 -4.544 -0.635
-8.777  0.152-1.042 -0.342 -1.407 -1.7   2.137 -7.251 -5.36  -4.546
 0.587  2.891-1.061  1.302  2.763 -3.634 -5.175 -2.857  5.578 -3.005
-1.044 -0.533-4.595  2.633 -4.413 -1.089 -3.406 -4.494  2.966 -0.342
-5.923  1.104 -2.09  -1.742  0.09  -3.801 -2.817 -4.938 -1.077  1.117
-3.301  0.181-2.495 -6.475  0.505 -0.53  1.295 -5.469 -5.771 -5.353
-0.972 -2.91 -0.117 -4.227 -2.731  0.218 -2.834 -3.601 -4.596  1.782
 8.735 -1.118  1.28  -5.185 -1.353  3.136  0.105 -8.008 -2.53  -0.02
 6.308 -4.362  1.328  5.051 -5.498 -2.582 -8.155  0.893  0.374 -2.204
-6.05   0.665-4.591 -3.847 -5.444 -8.415 -3.062 -0.44  -5.996 -2.586
 7.105 -5.441-1.768  0.244 -1.685 -4.519 -4.471 -2.06  -8.99 -2.653
 0.176 -5.207-5.642 -2.577  0.167  2.064 -6.731 -2.104 -6.347 -2.909
-2.189 -4.428-5.341  0.666  5.756 -5.216 -0.476 -4.394 -0.999 -1.931
 0.144 -10.8332.021 -4.295 -4.001  0.883 -1.154  1.056 -0.826 -1.846
-2.615  2.315  2.598 -6.207 -1.438 -1.628 -1.9   -2.4  -0.645  0.478
-2.372 -1.024-4.309 -6.267 -2.247  2.31  -6.001 -4.144 -2.391  2.581
 2.469 -4.265-0.886 -0.535 -7.799 -7.883  1.382  2.054 -1.449 -0.599
 2.227  2.111-2.677 -2.532 -3.317 -2.593 -0.949 -2.674 -3.428 -2.629
 2.252 -7.135  1.352 -2.588 -7.384 -5.624 -2.897 -3.767  0.586 -0.124

```

p m shankar

data (Karch)

Data set contains -ve values

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

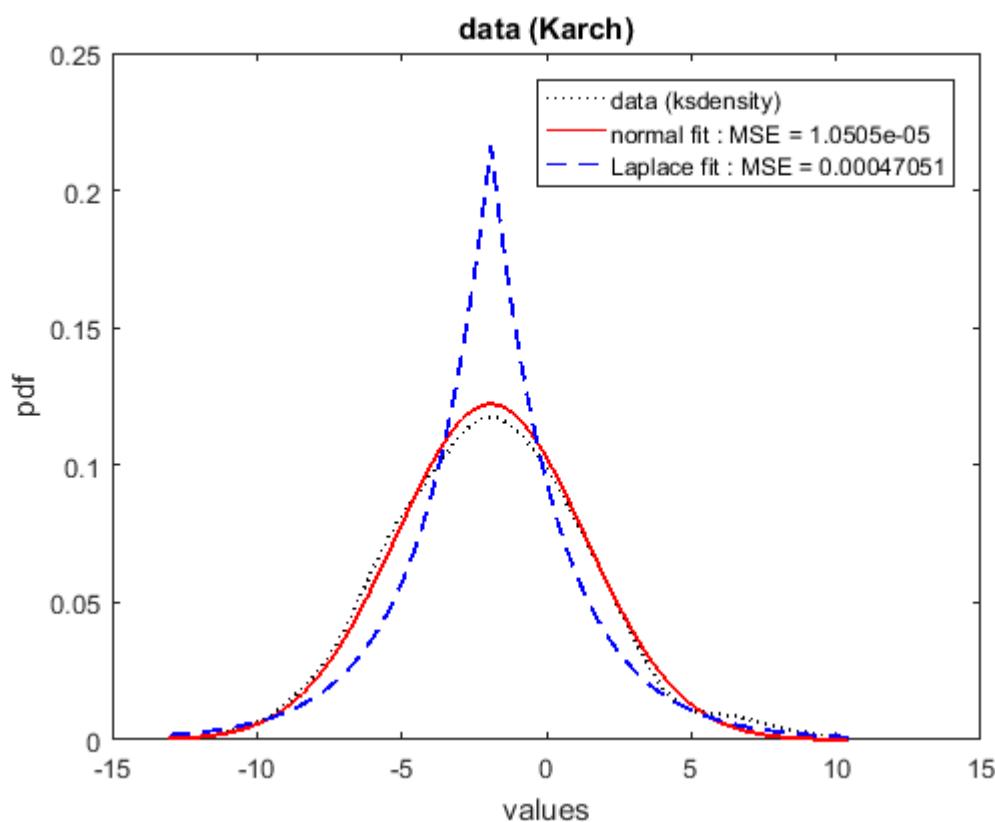
$\mu = -1.9244$ $\sigma = 3.2648$ normal fit : MSE = 1.0505e-05

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

$a = -1.9244$ $b = 2.3086$ Laplace fit : MSE = 0.00047051

best fit: normal

p m shankar



data (Karna)

4.193	1.696	0.785	8.669	1.548	3.52	0.781	3.75	3.349	0.145
3.572	3.721	1.182	4.874	9.888	2.383	0.238	0.885	3.172	3.311
0.75	3.302	2.737	2.481	1.519	8.276	0.306	2.003	3.113	3.579
2.578	7.381	2.06	11.209	1.639	2.327	4.48	0.821	0.883	5.12
1.761	2.1	5.404	1.4	6.923	2.672	2.54	2.506	5.37	4.557
3.518	2.097	3.115	2.906	5.336	5.356	0.372	1.902	1.979	1.403
2.618	1.53	2.865	1.25	2.437	1.024	5.085	0.607	1.749	4.029
0.373	2.2	1.238	3.086	2.685	0.44	1.522	3.07	7.484	2.435
4.586	0.79	3.888	0.738	0.079	4.552	2.711	3.599	0.409	0.331
1.349	2.217	8.42	1.54	4.239	4.796	1.877	9.361	1.902	2.202
0.676	1.225	1.076	4.867	3.346	4.952	10.007	5.405	9.558	4.529
1.964	0.778	4.905	5.338	2.658	4.012	1.396	1.779	1.834	1.061
2.198	1.205	2.165	5.276	1.046	0.49	1.211	2	1.447	0.525
2.578	0.692	2.753	1.903	3.646	6.105	2.644	3.752	2.399	1.03
3.074	0.349	2.586	0.728	0.621	3.831	4.447	0.342	3.32	0.646
1.094	1.272	2.56	1.509	1.138	2.475	4.03	0.417	0.286	4.252
1.815	5.018	0.635	5.168	4.742	0.455	5.411	1.553	10.155	3.085
3.866	1.617	1.516	5.779	3.304	1.962	5.831	0.455	0.782	3.312
0.48	4.52	1.892	5.128	2.745	2.253	0.51	3.417	1.273	0.3
3.314	3.798	3.279	2.736	4.142	0.094	1.049	5.308	4.82	10.673

p m shankar

data (Karna)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right)^{\frac{x}{a}} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 3.1712 b = 3.1712 Weibull fit : MSE = 0.00023507

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

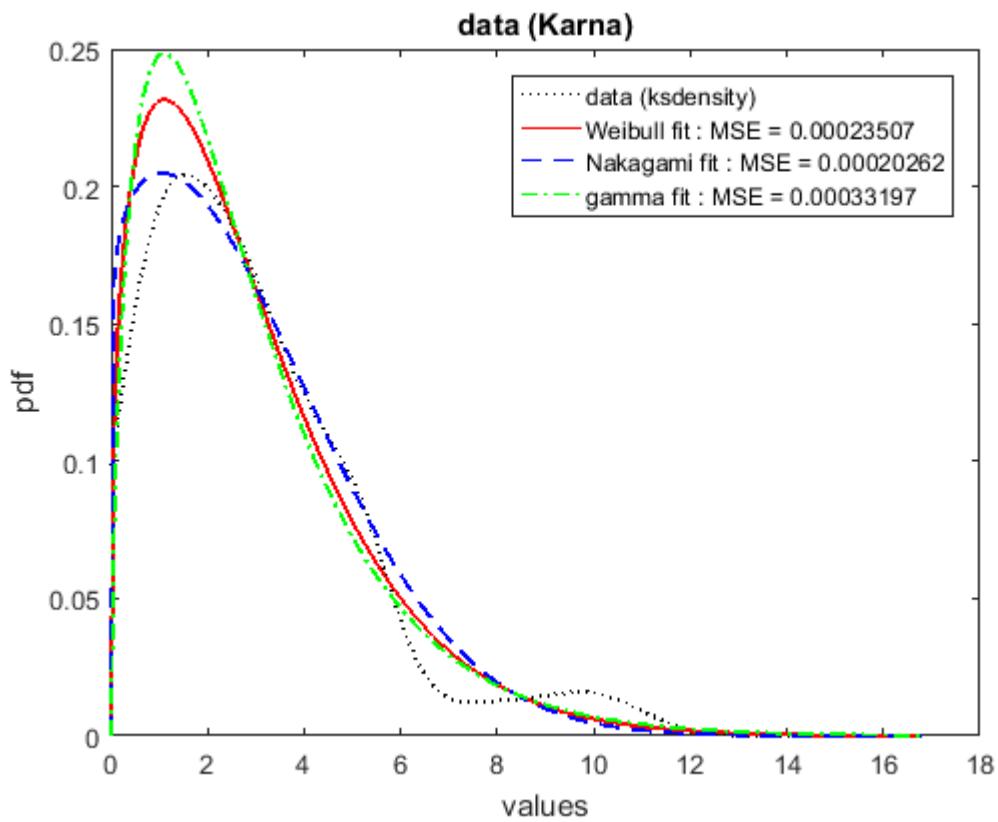
m = 0.54497 Ω = 13.5224 Nakagami fit : MSE = 0.00020262

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 1.6097 b = 1.8089 gamma fit : MSE = 0.00033197

best fit: Nakagami

p m shankar



data (Khoa)

1.889	5.065	10.599	0.684	2.202	-7.916	-0.657	-0.912	-1.205	-3.981
3.143	0.3	0.221	6.947	0.3	-1.952	-8.417	-3.938	-4.975	-0.579
0.189	0.061	0.943	4.02	1.484	-7.007	-2.754	-2.582	-2.992	-0.052
0.397	2.471	2.149	3.278	1.445	-0.602	-1.922	-1.805	-2.325	-0.943
1.793	6.591	1.642	1.158	0.454	-0.604	-2.625	-0.177	-0.056	-3.202
1.422	4.064	4.315	5.973	0.649	-0.975	-1.261	-2.619	-5.566	-1.613
1.598	2.684	2.337	0.98	1.651	-5.694	-1.396	-0.051	-0.468	-6.683
4.714	1.558	0.113	6.711	5.096	-1.248	-3.693	-3.597	-1.317	-0.295
3.599	4.016	1.811	1.275	4.282	-1.97	-2.52	-1.065	-2.932	-0.385
2.259	1.518	1.955	2.115	0.361	-0.082	-12.503	1.218	-4.968	-0.604
4.403	1.022	4.388	0.749	10.655	-1.297	-0.048	-1.853	-2.544	-4.033
0.508	4.519	2.147	1.006	2.141	-0.668	-5.366	-1.078	-2.189	-1.561
4.908	6.426	1.415	0.304	5.353	-2.37	-6.727	-1.217	-6.346	-11.381
4.463	3.645	1.161	0.346	0.065	-2.515	-2.963	-5.176	-1.585	-2.565
5.303	3.43	2.783	3.288	1.016	-0.576	-4.857	-6.167	-4.459	-3.487
4.44	2.573	3.004	1.075	2.077	-7.45	-2.142	-0.003	-2.867	-5.47
2.492	2.033	0.036	4.861	2.258	-6.048	-3.241	-5.296	-1.619	-5.165
3.503	7.377	9.831	10.466	8.459	-5.257	-0.149	-10.27	-4.137	-2.582
0.239	4.013	0.366	0.887	1.148	-2.818	-0.249	-1.733	-3.709	-7.086
2.53	0.666	0.272	2.079	9.48	-0.554	-8.831	-0.377	-1.448	-1.54

p m shankar

data (Khoa)

Data set contains -ve values

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

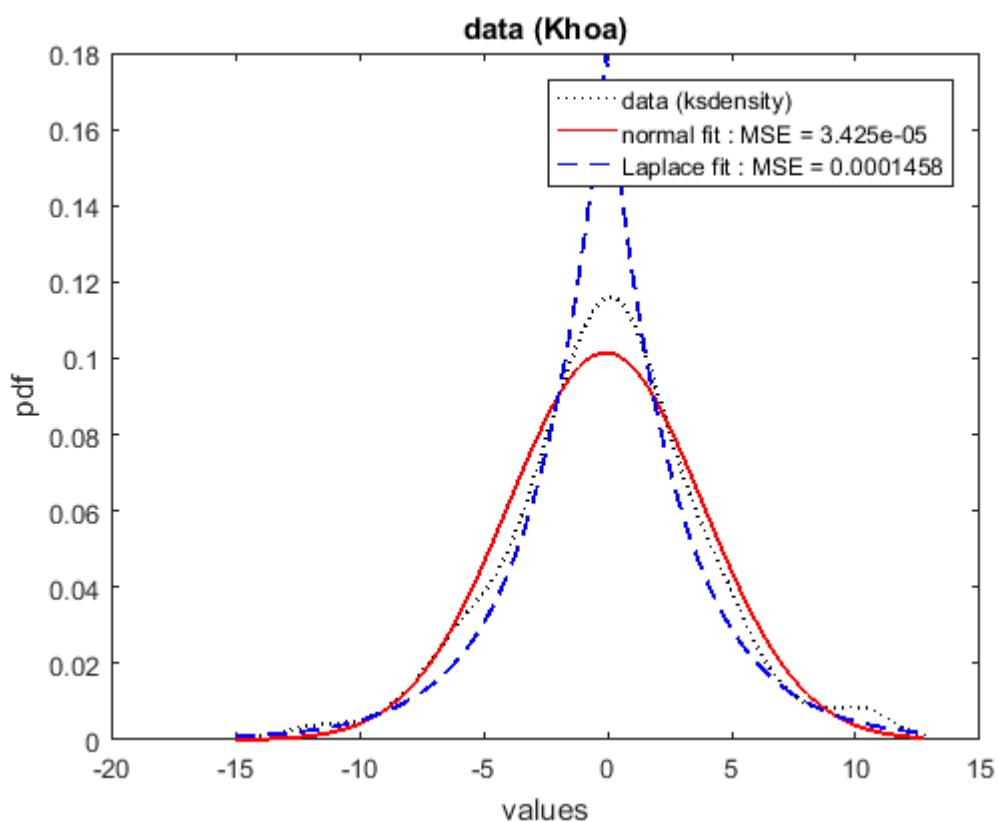
$\mu = -0.069426$ $\sigma = 3.933$ normal fit : MSE = 3.425e-05

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

$a = -0.069426$ $b = 2.781$ Laplace fit : MSE = 0.0001458

best fit: normal

p m shankar



data (Laudando)

0.442	1.194	0.666	1.876	1.122	0.717	1.872	1.381	2.459	1.895
1.095	1.994	2.869	2.128	1.83	1.15	2.211	0.782	2.003	1.437
1.809	1.319	1.131	1.919	1.889	1.203	1.824	2.113	0.822	1.003
1.194	0.508	0.226	0.914	1.085	3.159	0.821	2.935	2.901	4.041
1.031	2.467	1.157	2.594	0.975	2.248	1.526	0.554	1.235	1.93
1.691	0.586	1.174	0.612	2.139	1.617	1.709	1.439	1.26	2.358
1.865	1.044	0.669	3.32	1.475	1.549	1.793	2.625	1.367	2.017
0.796	1.314	0.653	1.722	0.433	1.202	1.699	0.34	1.851	1.67
1.265	2.277	2.613	2.978	1.98	1.109	0.904	2.51	1.243	1.812
0.947	0.681	1.83	1.91	3.969	1.575	2.716	0.595	1.843	1.244
0.291	0.651	1.553	2.196	1.711	2.614	3.235	0.392	1.662	0.818
1.064	0.987	1.568	0.66	0.716	0.704	1.284	2.173	0.589	0.937
2.017	1.263	0.849	1.131	1.151	2.421	0.892	0.262	1.982	1.151
1.919	1.252	1.323	1.278	2.013	3.62	1.76	1.24	1.795	2.652
1.35	1.16	1.617	0.736	3.073	1.583	1.908	2.62	1.097	3.122
2.005	2.548	1.278	2.118	1.604	1.193	2.324	1.205	0.963	0.49
1.92	1.519	0.143	0.658	2.471	0.911	2.651	2.807	3.695	2.269
2.432	0.398	0.522	2.831	2.035	1.534	1.342	1.877	2.012	1.6
0.299	3.955	1.906	1.24	1.167	0.944	2.074	2.099	2.649	2
1.423	1.68	1.226	2.177	1.95	2.485	0.753	1.949	1.64	1.037

p m shankar

data (Laudando)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right)^{\frac{b}{a}} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 1.8175 b = 1.8175 Weibull fit : MSE = 0.0002201

$$f_X(x) = 2\left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

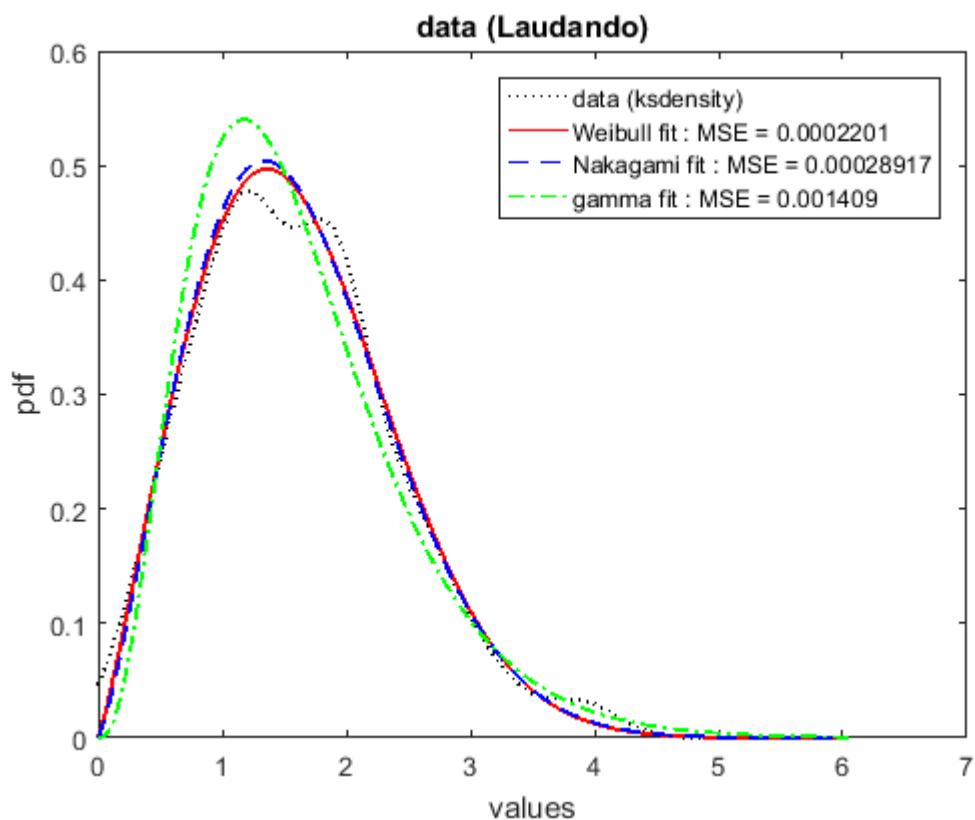
m = 1.14 Ω = 3.2072 Nakagami fit : MSE = 0.00028917

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 3.6784 b = 0.43728 gamma fit : MSE = 0.001409

best fit: Weibull

p m shankar



data (Lechman)

```

-0.217 -3.307 -3.637  1.318 -4.244 -6.623 -3.094 -2.643 -4.573 -1.967
 0.668 -5.995 -1.389 -4.067 -4.805  3.511 -4.269 -5.292 -2.911 -2.385
  1.07 -1.893 -0.677 -1.818  0.553 -2.58  0.985  2.676  0.025 -3.359
-0.984 -1.841  0.274  1.229 -4.769  2.291 -1.493  0.735 -2.975 -1.15
-1.59 -0.374 -1.075 -0.28 -5.199  2.879  0.623 -2.277 -0.596 -2.437
 0.632 -0.285 -2.143  4.663  0.972 -4.672 -3.079 -0.717  3.945  2.605
 3.911 -2.715  0.491 -1.12 -2.636 -0.558  1.24 -1.575  0.988 -0.411
 1.211 -3.033 -1.284 -4.88  2.112  7.666 -5.534 -4.654  1.593  1.553
-0.789  0.984  1.018  0.11 -4.231 -1.537  2.917 -8.206  4.901 -1.35
-2.436 -1.955 -1.225 -3.28 -2.536  0.216  1.116 -1.119  1.938 -1.204
 0.249 -4.428 -1.016 -0.876 -0.396 -0.173 -0.725 -2.156 -0.006  2.146
-2.21 -0.974 -1.23  1.695  0.373  2.17 -3.903 -2.442  3.878  2.671
-0.404 -0.49 -3.303 -0.23  0.169  1.726 -1.994 -3.115 -3.262 -0.918
 0.946 -2.028 -3.317 -0.251 -0.521 -3.366 -0.364 -5.543 -2.705  3.231
 1.311  0.659 -3.403 -1.493 -1.575 -2.096  2.019 -2.304  4.046  0.189
  0.47 -0.436  3.462 -1.366 -2.448 -0.142 -3.584 -0.596  0.136 -0.079
 2.445 -1.532 -1.5 -1.258  0.201 -1.146  2.238 -3.655 -1.105  4.48
 3.628 -1.11  1.351 -7.997 -1.967  5.337  5.92  0.126  0.145  2.839
-5.744  0.145 -0.127 -0.017  0.054  0.097 -2.238 -1.682 -1.66  1.268
-5.447 -2.104  3.648  1.476  1.719  0.094  0.172 -1.254 -1.73  0.006

```

p m shankar

data (Lechman)

Data set contains -ve values

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

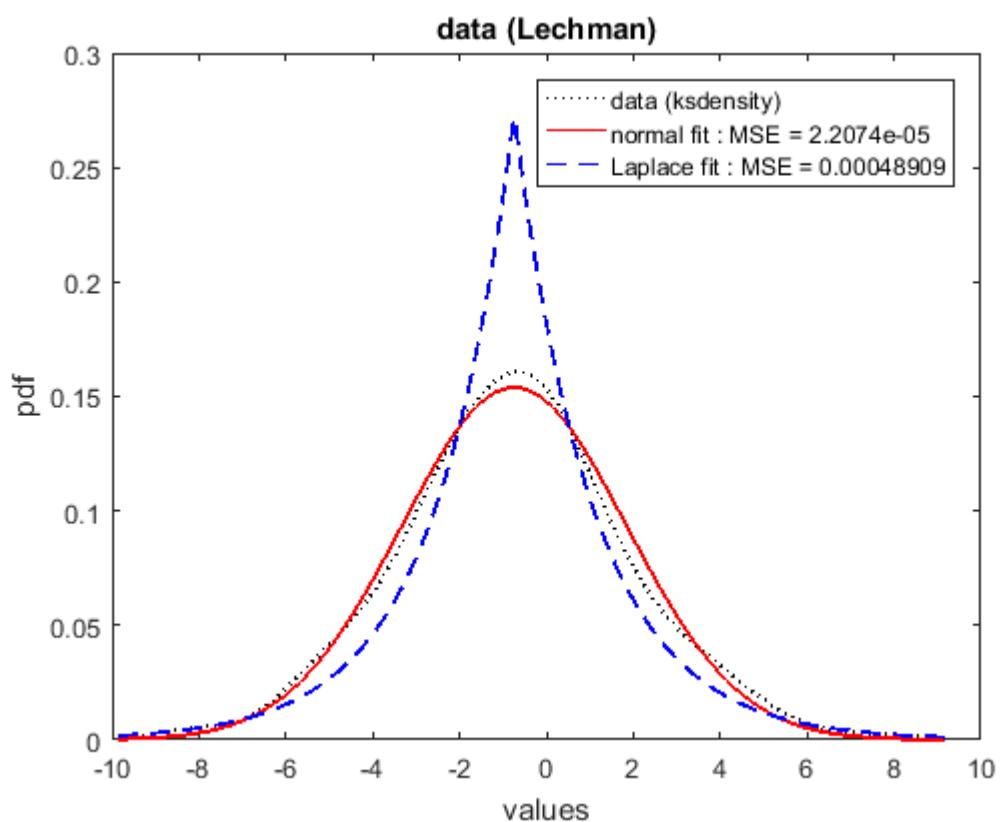
$\mu = -0.74262$ $\sigma = 2.5923$ normal fit : MSE = 2.2074e-05

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

$a = -0.74262$ $b = 1.833$ Laplace fit : MSE = 0.00048909

best fit: normal

p m shankar



data (Li)

1.528	1.789	0.476	0.519	2.473	5.288	3.624	4.298	0.344	0.82
1.405	2.736	1.53	5.955	1.093	1.436	0.537	5.235	0.195	0.204
0.082	1.347	3.304	0.437	2.176	1.529	2.528	5.862	1.417	1.549
3.478	5.482	3.588	5.621	0.318	0.818	3.149	0.521	2.498	0.593
1.294	0.638	3.044	0.273	1.143	2.655	3.749	3.075	0.621	15.568
6.859	1.563	1.655	3.28	0.098	2.3	1.198	0.434	1.547	1.147
1.307	4.204	0.953	1.346	0.454	4.318	4.988	2.452	2.651	2.491
1.924	3.239	0.378	1.916	7.661	1.615	1.481	0.537	3.874	0.873
2.298	8.241	2.406	10.573	0.612	2.185	2.239	1.712	0.378	3.918
0.321	1.164	2.357	1.43	8.559	1.186	1.859	0.55	3.808	0.171
3.617	4.07	1.693	0.824	7.301	6.065	0.612	3.375	1.158	2.055
4.797	1.234	4.104	3.211	1.839	9.056	1.79	1.929	0.574	2.599
1.602	2.098	2.124	4.779	7.183	1.776	0.395	0.49	1.375	1.241
1.586	0.237	5.783	1.558	0.802	6.812	0.424	1.138	0.961	0.052
1.745	0.666	3.571	0.821	0.559	1.198	5.475	2.122	1.276	1.27
0.121	0.119	1.374	3.594	6.436	3.226	1.75	0.932	0.951	0.935
2.337	3.151	1.682	7.237	0.669	0.036	0.901	9.395	2.595	1.717
4.607	0.731	2.214	2.331	0.732	1.945	3.984	0.777	0.695	1.057
1.516	4.698	0.425	2.777	3.603	1.153	1.189	1.325	3.912	5.09
0.592	1.001	1.356	0.468	1.767	0.942	12.045	7.839	0.24	0.722

p m shankar

data (Li)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right)^{\frac{b}{a}} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 2.5421 b = 2.5421 Weibull fit : MSE = 0.00037868

$$f_X(x) = 2\left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

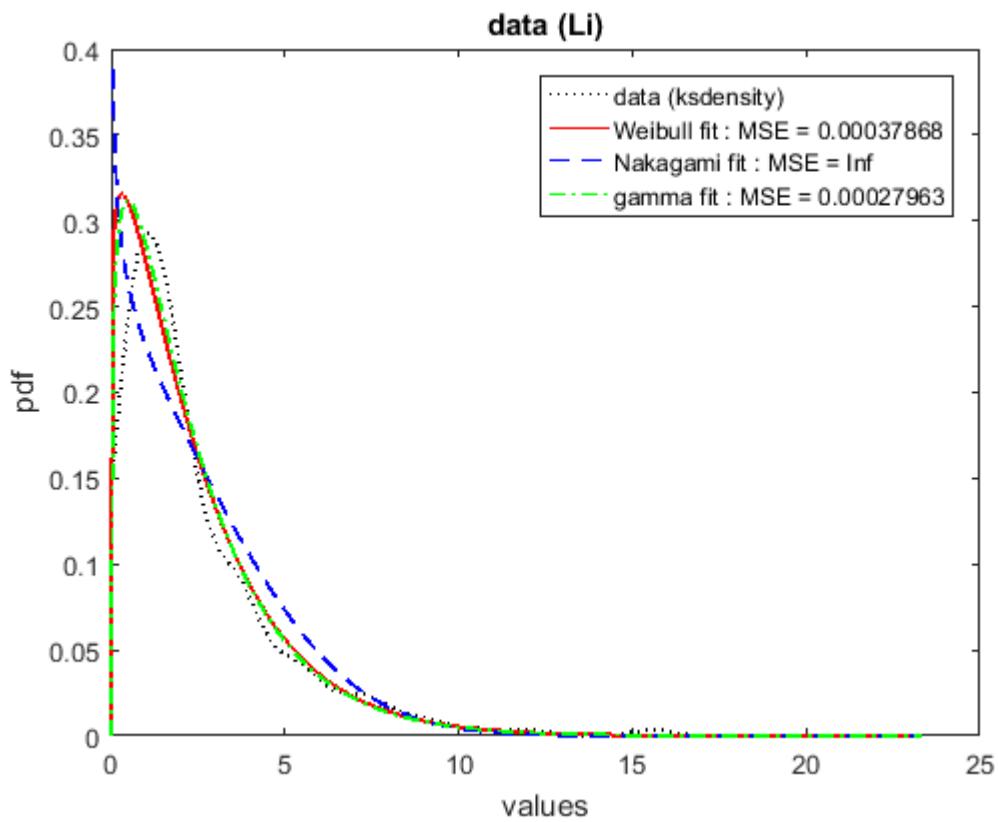
m = 0.41617 Ω = 11.574 Nakagami fit : MSE = Inf

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 1.2412 b = 1.9678 gamma fit : MSE = 0.00027963

best fit: gamma

p m shankar



data (Liao)

3.433	2.704	1.005	1.44	2.447	3.797	1.871	-2.296	3.304	3.935
1.734	2.314	0.081	2.933	1.976	-2.551	1.034	-0.145	2.717	3.261
-1.535	-0.507	-3.206	1.7	7.532	1.659	0.274	2.318	2.891	1.021
2.242	-1.677	1.748	2.804	1.063	-1.116	-0.262	-1.561	4.012	1.249
-2.591	2.304	1.49	5.242	1.683	-0.287	-0.001	1.1	1.591	4.559
-1.116	3.894	1.677	3.497	0.833	1.517	-0.734	2.097	3.408	0.521
1.303	-1.58	-1.156	-1.246	2.233	2.783	-1.08	4.557	0.976	2.716
1.823	-3.416	-0.46	-0.66	-0.05	-0.673	3.531	2.282	2.579	-0.757
1.141	3.872	-0.833	0.756	3.015	2.106	0.517	2.893	-1.807	-0.524
-2.866	0.877	4.575	-0.285	4.658	3.917	-2.458	0.291	4.084	2.726
2.637	3.356	-0.641	0.842	1.171	-0.71	0.024	-0.158	-2.55	2.297
3.524	2.971	0.607	3.456	0.863	-0.984	3.121	1.113	1.411	3.116
3.335	-1.437	-0.78	-0.063	-0.127	0.977	-0.076	-0.787	0.308	-0.266
-0.141	0.136	2.821	0.428	0.053	2.254	4.555	3.244	-1.318	3.036
0.212	-0.67	0.975	0.545	-2.407	1.003	-0.559	2.552	1.672	1.344
-1.035	1.359	1.146	2.349	0.893	-0.633	-0.506	2.925	1.664	0.905
1.5	3.333	2.879	3.074	-0.763	1.23	-1.066	3.522	3.822	4.378
1.504	1.112	2.35	0.701	3.512	1.414	3.328	0.784	1.274	3.874
-0.543	-3.2	2.572	0.366	1.312	0.111	-0.16	-0.154	2.155	-3.502
2.839	3.471	-3.265	2.867	1.11	-1.241	1.835	2.051	1.486	1.713

p m shankar

data (Liao)

Data set contains -ve values

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

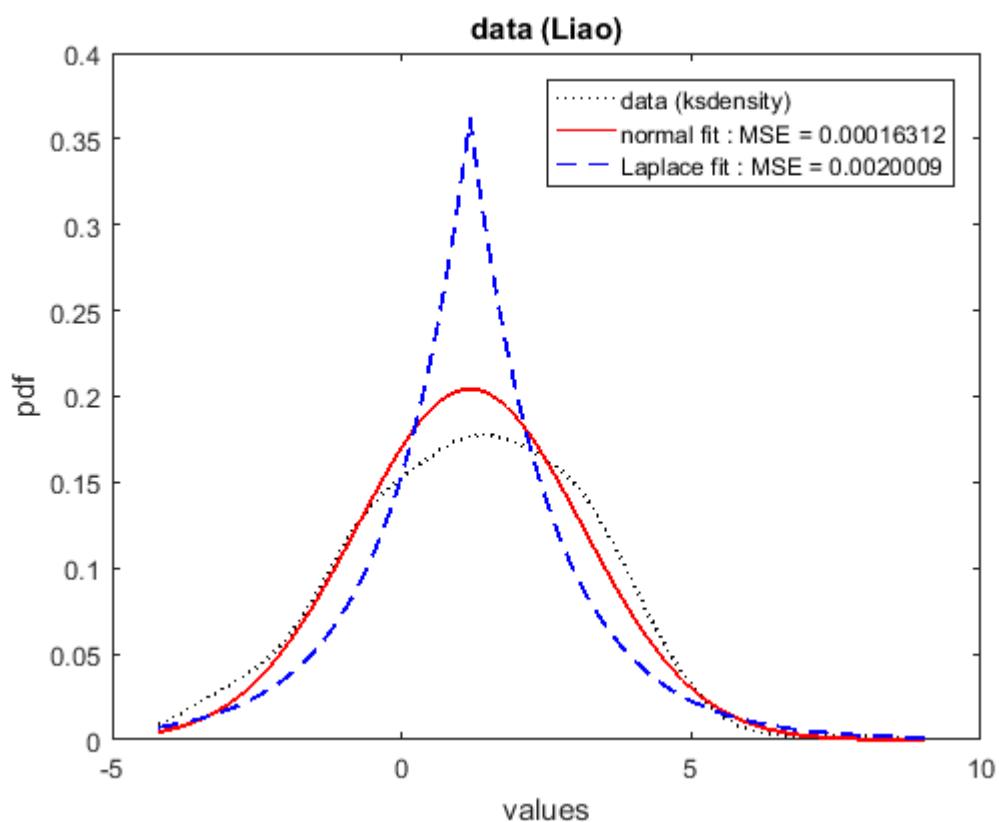
$\mu = 1.1781$ $\sigma = 1.9524$ normal fit : MSE = 0.00016312

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

$a = 1.1781$ $b = 1.3806$ Laplace fit : MSE = 0.0020009

best fit: normal

p m shankar



data (Liston)

1.023	0.517	1.2	0.835	1.893	0.624	1.81	1.327	1.747	1.079
1.953	1.702	1.127	0.963	1.681	1.685	0.906	0.864	1.019	1.304
1.412	1.229	0.652	1.141	0.904	1.383	1.209	0.752	1.322	1.252
1.366	1.073	0.842	0.719	0.791	1.737	0.503	1.363	1.617	1.302
1.269	0.902	1.953	0.605	1	1.288	0.629	0.822	1.134	1.568
1.389	0.788	0.625	1.437	1.227	1.704	1.518	1.466	0.95	0.656
0.983	1.004	0.49	2.663	1.693	1.69	1.91	0.757	0.825	2.069
1.116	2.186	1.295	1.341	0.685	1.159	1.558	1.097	1.235	1.626
2.456	0.711	1.663	1.144	1.374	1.565	1.758	1.269	0.974	0.544
0.71	0.916	1.122	0.723	0.975	1.403	1.538	0.567	1.417	1.41
1.132	1.721	2.189	0.323	1.144	1.728	0.976	1.743	1.033	1.311
1.304	1.625	1.049	1.356	0.933	1.138	0.615	0.968	1.027	0.73
0.679	0.819	0.935	1.321	0.931	2.28	1.317	1.497	1.422	1.217
0.63	0.607	1.107	1.409	1.422	0.773	1.187	1.594	0.867	1.146
1.229	1.433	1.221	0.499	1.647	1.155	0.967	1.135	0.722	0.848
0.705	0.582	0.898	0.889	1.47	1.018	1.538	0.885	1.143	0.657
1.091	1.163	1.607	1.388	1.506	0.773	0.705	0.985	1.471	1.202
1.295	1.568	1.457	1.043	1.547	1.625	1.46	1.049	1.36	1.348
1.054	1.458	1.07	1.981	1.442	0.888	2.116	0.746	1.599	0.787
1.855	1.98	1.321	1.071	0.749	1.016	0.92	1.165	1.104	1.433

[p m shankar](#)

data (Liston)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right)^{\frac{b}{a}} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 1.3504 b = 1.3504 Weibull fit : MSE = 0.00075872

$$f_X(x) = 2\left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

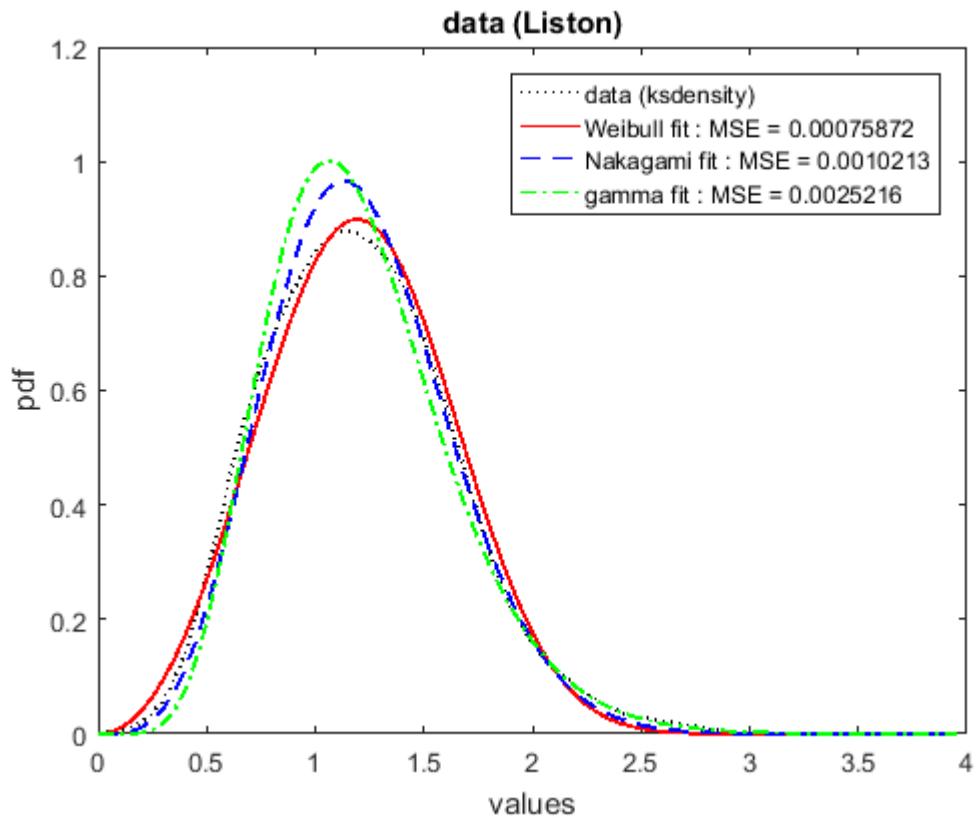
m = 2.2907 Ω = 1.6308 Nakagami fit : MSE = 0.0010213

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 8.2987 b = 0.14558 gamma fit : MSE = 0.0025216

best fit: Weibull

[p m shankar](#)



data (Liu)

6.252	2.664	1.424	1.916	0.801	5.569	3.476	2.448	0.77	4.121
1.193	1.689	4.907	5.828	1.654	7.723	5.069	0.972	1.641	2.601
3.65	1.39	1.416	3.655	5.174	3.994	1.376	3.247	0.273	0.974
0.878	2.042	2.732	9.855	2.022	0.925	1.444	3.234	1.791	0.483
1.275	5.145	3.455	0.55	0.897	11.177	0.605	4.543	2.658	2.967
10.832	1.997	5.607	1.123	5.854	1.474	3.834	6.308	3.846	1.991
4.798	4.952	5.135	3.412	3.591	0.942	1.641	2.983	9.418	3.452
1.277	2.902	2.856	5.549	2.045	2.398	2.583	3.072	4.059	8.281
1.22	1.642	1.61	6.816	4.353	0.317	3.799	0.175	1.464	3.036
0.954	4.451	6.045	5.032	0.677	3.245	1.407	3.029	1.654	5.49
3.607	5.68	3.505	3.196	0.313	2.352	1.938	2.243	1.855	3.784
3.814	2.208	5.708	1.539	1.345	0.804	1.517	2.841	1.745	6.732
0.299	2.17	3.684	7.669	3.525	3.094	1.238	1.521	3.653	3.067
1.985	2.887	2.099	0.968	2.382	7.415	1.881	2.464	1.982	0.587
5.534	5.073	2.858	2.618	5.355	1.641	8.981	3.553	4.906	2.528
3.223	6.149	0.811	1.214	3.142	5.744	4.946	8.19	1.111	1.325
1.188	3.422	0.66	3.205	1.425	3.99	2.732	12.284	3.401	1.008
0.443	1.577	0.687	3.168	1.519	4.503	5.38	1.859	0.471	2.408
1.786	1.625	2.847	1.424	3.94	1.499	1.867	1.926	3.462	6.993
0.9	7.566	2.16	1.431	1.243	0.541	3.246	1.902	6.564	1.252

p m shankar

data (Liu)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right) \frac{x^{b-1}}{a} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 3.4439 b = 3.4439 Weibull fit : MSE = 6.7991e-05

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

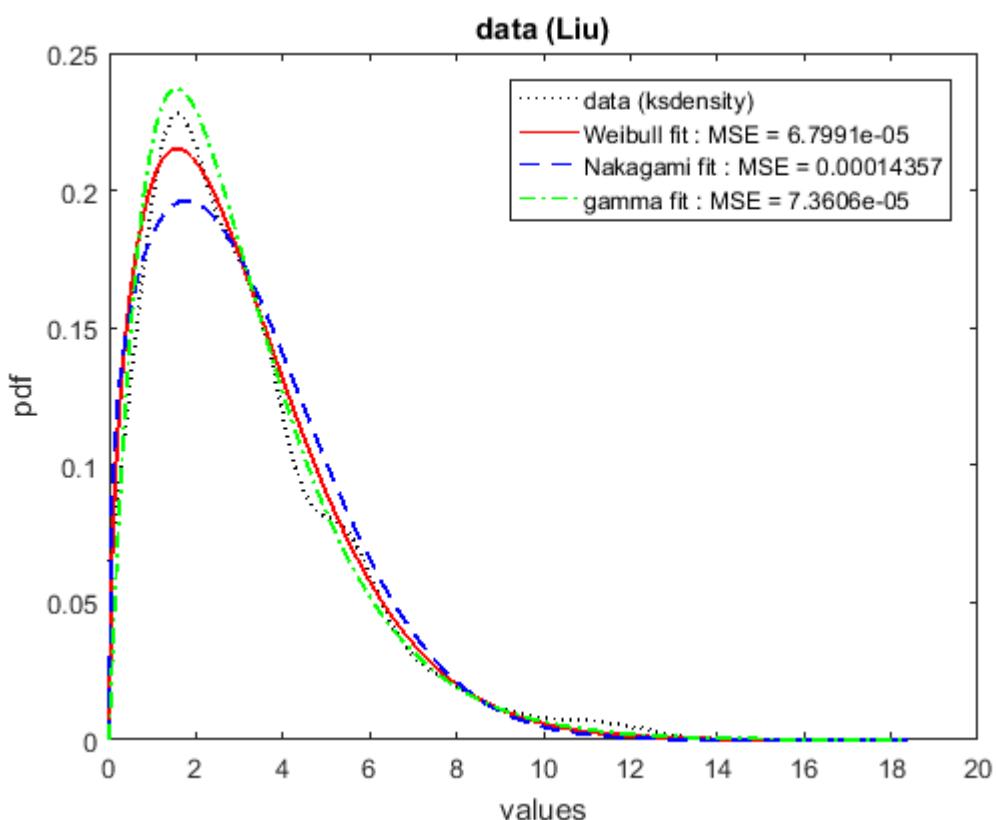
m = 0.63785 Ω = 14.6653 Nakagami fit : MSE = 0.00014357

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{a-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 2.0018 b = 1.5508 gamma fit : MSE = 7.3606e-05

best fit: Weibull

p m shankar



data (Louie)

-2.292 -0.078 -2.086 -4.461 -5.2 -1.458 -5.327 -1.656 -1.014 -0.188
-4.277 -3.128 1.913 -3.745 -3.357 -1.29 -3.656 -2.632 0.88 -1.537
-1.37 -4.578 -4.544 -3.605 -3.862 -4.613 -4.583 -2.027 -1.63 -1.83
-2.613 -1.198 -1.45 0.205 0.2 0.442 -1.693 -0.784 -3.488 -3.221
-1.557 -0.944 -3.853 -2.961 -3.22 -1.498 -1.696 -0.548 -1.887 -0.317
-0.251 -7.025 -3.444 -1.817 -4.552 -1.713 -3.386 -3.499 0.041 1.257
-2.986 -1.952 -1.118 -4.666 -2.833 0.701 0.339 -4.655 1.566 -1.049
-2.965 2.191 0.186 -2.366 -3.37 -1.682 -3.576 -2.838 -4.81 -1.385
-2.518 -2.377 -1.66 -5.252 -1.476 -5.445 -2.691 0.04 -1.772 -1.529
-1.575 -3.288 0.61 -3.405 -2.463 -2.032 -3.335 -1.314 -2.867 0.068
2.074 -4.016 -3.86 -0.481 -4.971 0.334 -3.793 -1.212 -0.911 -2.662
-3.746 -5.622 -1.324 1.419 -0.839 0.425 -1.891 -2.885 -1.662 -3.024
0.68 -2.979 -3.062 -1.029 -2.728 -1.471 -4.788 -3.531 -3.177 -0.936
-2.431 -1.397 -3.515 -1.806 -3.2 -5.387 -2.624 2.154 -5.614 -2.613
-0.204 -3.968 -7.263 0.147 -3.704 0.193 -0.339 -2.21 -4.428 -0.216
-1.881 -1.493 -0.48 -0.544 -0.412 -2.115 -0.372 -2.066 -3.213 -4.928
-3.068 -0.424 1.75 -6.898 -2.218 -1.616 -5.892 -2.547 -2.547 0.653
-2.518 -3.187 -1.001 -5.583 -5.106 0.563 -1.187 -1.861 0.351 -3.461
-0.082 -1.016 0.753 -3.667 2.342 -1.194 -2.916 -2.639 -3.189 -1.523
0.534 -0.869 -1.882 -3.747 -2.683 -9.444 -1.099 -4.088 -1.256 -2.936

p m shankar

data (Louie)

Data set contains -ve values

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

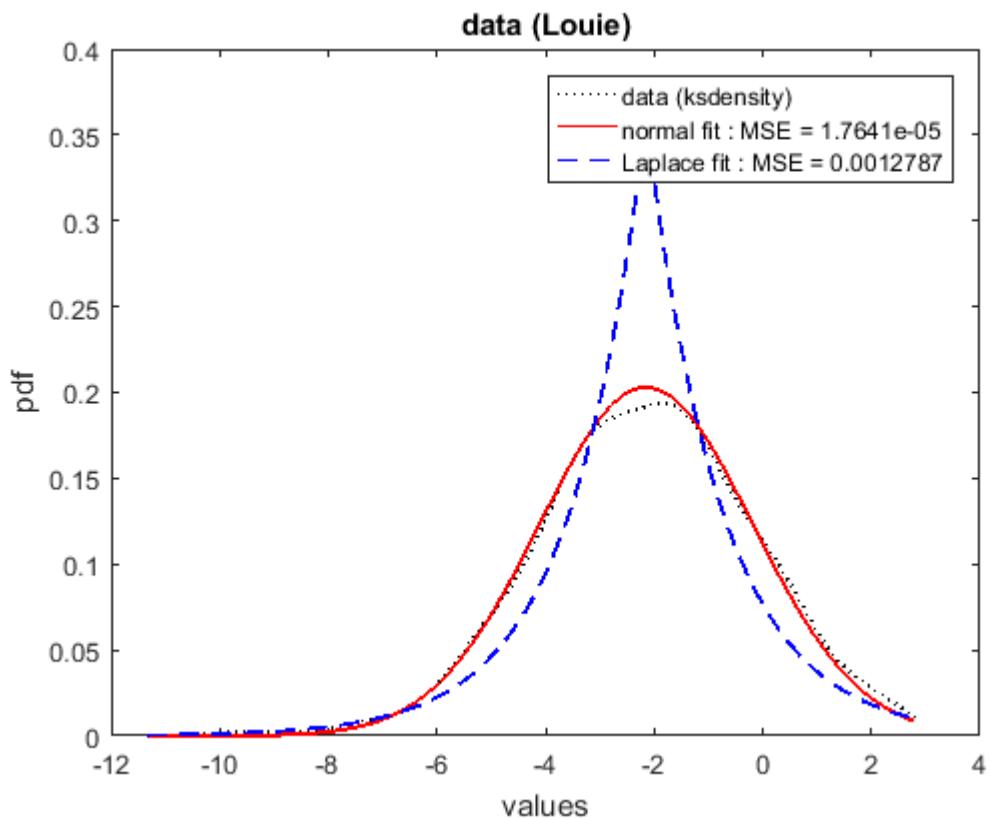
$\mu = -2.1462$ $\sigma = 1.9656$ normal fit : MSE = 1.7641e-05

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

$a = -2.1462$ $b = 1.3899$ Laplace fit : MSE = 0.0012787

best fit: normal

p m shankar



data (Mahoney)

1.322	1.185	1.585	3.391	1.597	1.728	1.572	1.252	1.497	1.259
0.435	0.144	0.673	1.673	2.047	0.497	1.456	1.197	0.965	2.793
0.158	2.834	1.985	1.482	1.46	1.058	2.065	0.461	0.498	0.653
0.396	0.879	0.938	2.079	0.498	3.089	1.571	1.11	1.706	1.73
1.319	0.474	0.547	2.417	0.518	1.549	1.153	0.756	0.069	0.936
0.474	0.569	0.791	1.32	1.448	1.189	1.159	0.964	0.638	0.721
1.463	2.188	1.819	1.495	0.94	1.024	2.029	1.304	0.726	0.928
1.067	0.321	1.518	0.659	1.76	1.346	2.197	1.846	0.973	0.983
1.142	1.357	1.51	1.182	0.34	0.686	1.439	1.068	1.171	1.799
0.614	0.546	1.723	0.673	1.029	2.085	0.645	1.951	1.462	1.29
1.681	0.571	1.564	1.321	1.883	0.239	1.948	1.91	0.664	0.384
0.961	1.526	2.344	3.098	2.23	0.64	1.247	0.578	1.08	1.789
1.068	1.018	1.337	3.454	1.132	1.558	2.158	2.16	0.745	1.876
0.973	0.572	1.332	2.009	1.706	1.044	0.572	0.992	0.167	1.71
1.623	2.948	2.822	1.504	2.438	1.637	0.773	1.364	0.732	0.756
1.576	2.403	1.007	0.863	2.036	2.332	1.135	1.05	0.598	1.576
1.939	1.482	2.52	2.033	2.6	1.21	1.456	0.828	1.275	1.067
2.273	2.069	1.999	1.695	0.93	0.657	1.267	1.638	0.551	1.952
1.677	2.757	0.923	0.993	0.744	0.778	0.52	2.661	1.571	2.341
1.527	0.743	1.152	1.675	0.694	0.348	0.474	0.636	1.887	1.626

p m shankar

data (Mahoney)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right) \frac{x^{b-1}}{a} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 1.5121 b = 1.5121 Weibull fit : MSE = 0.00046145

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

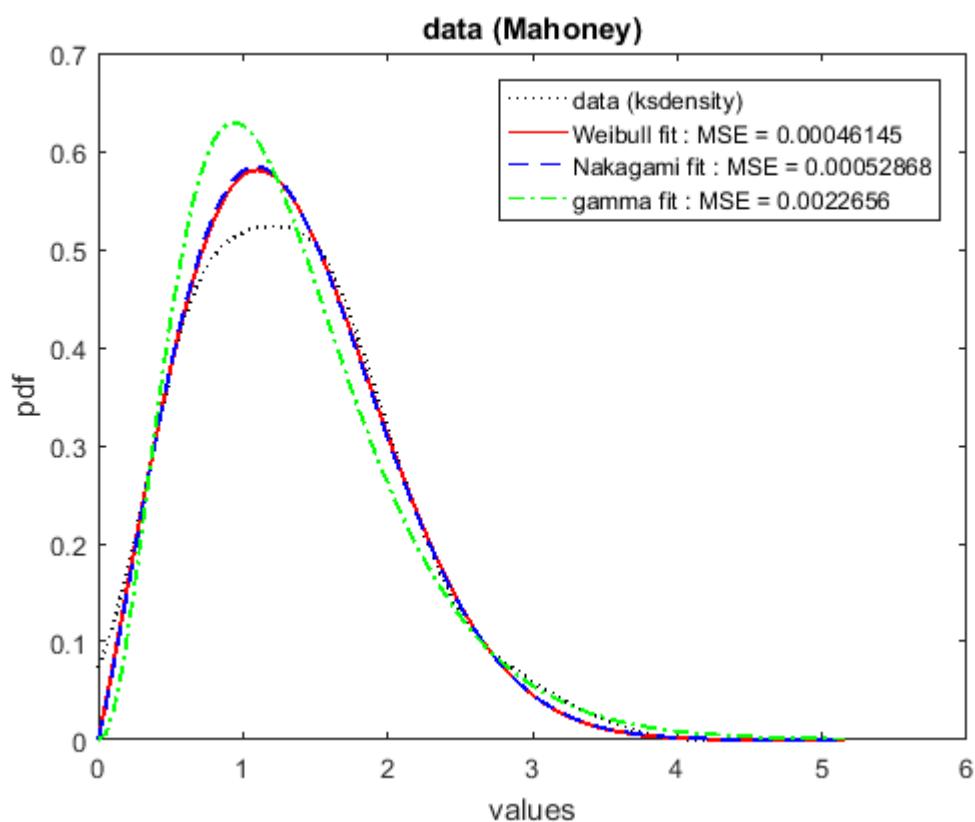
m = 1.0608 Ω = 2.2538 Nakagami fit : MSE = 0.00052868

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 3.3651 b = 0.39793 gamma fit : MSE = 0.0022656

best fit: Weibull

p m shankar



data (Mak)

6.864	2.481	2.274	0.129	1.224	2.331	0.335	5.752	3.815	1.978
9.716	2.238	3.686	0.29	2.067	0.756	1.342	3.009	1.036	1.644
2.416	5.907	5.073	4.651	1.353	2.427	0.99	2.29	6.034	4.166
2.326	4.374	2.126	1.714	2.355	13.118	0.373	6.091	1.837	4.492
1.78	1.559	6.41	5.17	0.226	0.864	2.377	3.404	3.027	3.359
1.296	1.177	1.139	3.911	3.232	5.654	2.08	0.831	0.953	1.179
1.49	3.469	0.404	1.178	0.083	3.848	4.372	2.1	4.812	2.357
6.255	2.205	4.659	2.13	1.325	3.851	1.753	1.105	4.807	0.74
1.982	1.109	2.306	0.543	0.338	3.343	1.075	0.393	1.85	2.017
2.419	4.13	4.843	1.438	2.802	1.562	2.828	0.591	2.153	1.732
0.904	2.222	3.596	0.388	6.383	0.966	4.099	7.573	0.102	1.472
1.44	3.141	0.065	1.357	0.049	1.887	0.069	4.882	5.24	2.322
0.421	2.056	0.514	1.29	4.292	4.054	2.848	6.509	1.289	0.126
0.599	4.696	1.711	0.829	9.322	6.42	1.982	3.436	3.522	0.781
2.259	3.244	11.755	11.181	0.7	2.814	8.691	1.687	1.523	1.606
4.032	2.098	2.193	4.239	1.047	6.425	3.929	10.281	4.842	1.493
6.23	2.406	0.495	4.508	6.403	1.331	1.113	1.739	2.885	2.318
0.573	8.075	1.475	3.951	1.982	5.267	3.32	2.155	0.742	2.721
1.239	3.497	2.242	0.083	0.764	0.416	6.681	4.168	0.312	0.096
4.858	1.929	3.011	3.578	0.046	0.717	2.497	1.542	3.279	9.991

[p m shankar](#)

data (Mak)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right)^{\frac{b}{a}} x^{b-1} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 3.0317 b = 3.0317 Weibull fit : MSE = 0.0003247

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

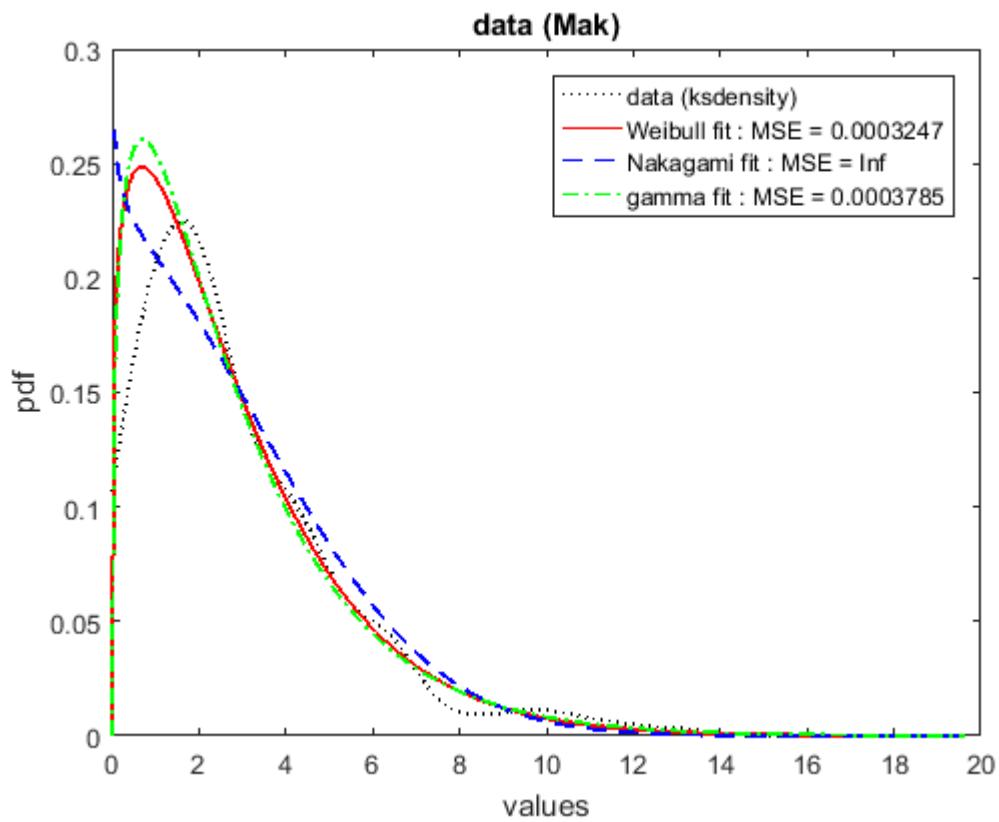
m = 0.4667 Ω = 13.8282 Nakagami fit : MSE = Inf

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 1.324 b = 2.155 gamma fit : MSE = 0.0003785

best fit: Weibull

[p m shankar](#)



data (Miksitz)

1.474	1.34	1.565	1.352	1.532	0.856	1.123	0.502	0.602	1.035
1.625	1.434	1.785	1.204	1.919	1.179	1.421	1.383	1.064	1.072
0.959	0.494	1.578	1.685	1.558	1.127	1.241	1.144	0.877	1.175
1.75	0.727	1.185	0.918	1.173	1.255	0.675	1.249	1.208	0.885
0.912	1.313	0.71	1.138	1.748	1.136	1.475	1.152	1.568	1.265
1.553	1.225	0.659	1.18	1.005	1.527	1.685	1.044	0.405	1.282
1.063	1.326	1.012	1.427	0.781	1.062	1.997	0.904	1.785	1.366
1.034	1.307	0.622	1.407	1.33	0.693	1.961	1.272	0.643	1.154
0.969	1.928	0.593	0.984	1.346	1.406	0.567	1.472	0.839	0.967
2.41	0.867	1.695	0.666	0.789	1.209	1.594	1.138	2.212	1.678
0.882	0.998	1.329	0.97	1.476	0.671	0.668	1.098	2.128	0.704
0.76	1.568	1.068	0.851	1.757	1.728	0.874	1.35	0.876	0.987
0.412	0.518	1.23	0.781	0.614	1.36	0.778	1.583	1.486	1.546
0.931	0.856	0.887	0.859	0.766	0.671	0.887	2.098	0.565	1.515
1.18	1.261	1.546	1.853	0.918	0.971	0.616	0.847	0.789	1.131
1.951	1.086	0.397	0.833	1.251	1.442	0.327	1.156	0.823	1.49
0.648	1.306	0.866	0.694	1.757	0.889	1.348	0.947	1.635	1.731
1.258	0.361	1.393	1.463	1.137	0.609	0.751	1.025	1.411	0.797
1.112	1.163	1.701	0.346	0.833	0.679	0.724	1.641	1.215	0.781
0.751	1.144	1.299	1.827	2.224	0.928	1.135	0.946	0.921	0.98

p m shankar

data (Miksitz)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right) \frac{x^{b-1}}{a} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 1.2942 b = 1.2942 Weibull fit : MSE = 0.0011646

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

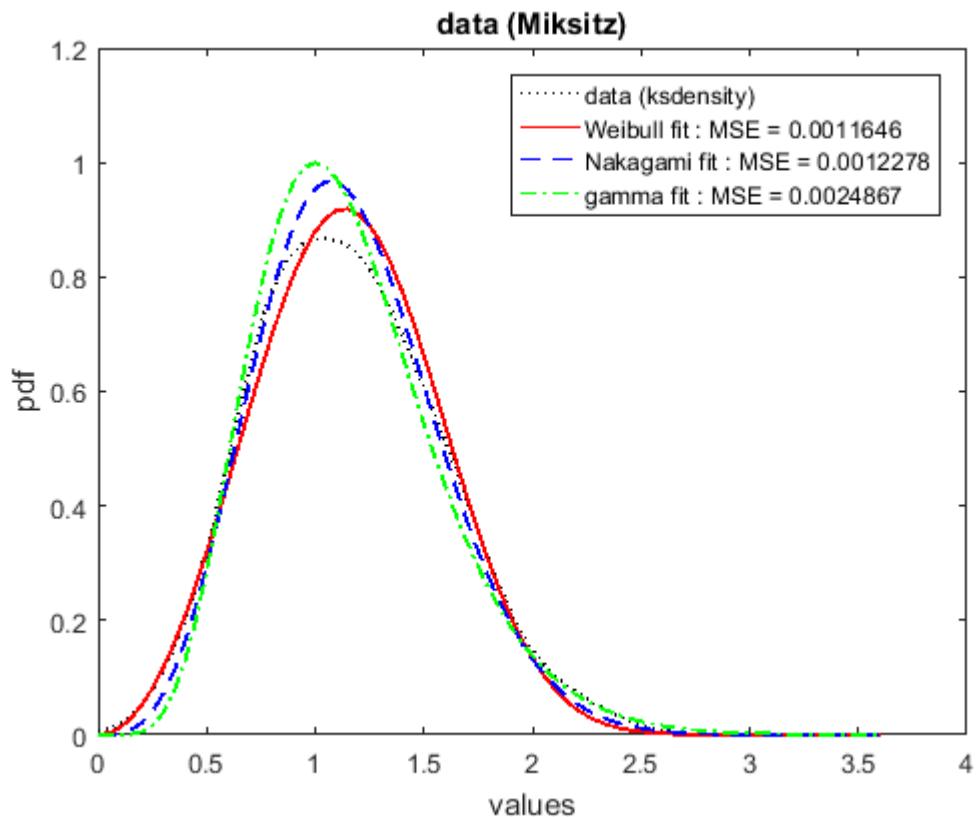
m = 2.105 Ω = 1.5039 Nakagami fit : MSE = 0.0012278

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 7.4569 b = 0.15497 gamma fit : MSE = 0.0024867

best fit: Weibull

p m shankar



data (Millington)

-0.573 -3.796 -2.203 1.76 -1.84 1.217 -3.278 0.473 1.355 -1.559
 -4.835 -3.095 -2.85 -4.127 -5.364 -3.914 -3.524 -2.308 -1.983 1.546
 -4.135 -5.341 -1.593 -1.853 -4.018 2.023 -2.844 -3.59 -5.557 0.466
 1.265 -0.872 -3.424 1.842 -4.587 -1.96 -2.983 -3.163 1.38 1.728
 -3.951 -1.389 -2.501 -0.715 -7.329 -1.109 -0.685 -2.995 -2.583 -1.559
 -3.397 -3.254 -1.619 -1.258 2.266 0.899 0.872 -0.125 -0.151 -0.183
 -1.875 -4.785 -6.44 -2.291 -3.461 0.206 -5.07 -4.311 -3.444 -3.182
 -3.597 -2.551 -5.836 -1.51 -0.32 -3.752 1.506 -1.062 -0.776 -2.462
 -1.707 -2.336 -4.134 1.78 -1.966 -3.83 0.566 0.009 -0.33 -5.496
 0.352 -6.346 -1.84 -2.922 -3.988 -3.83 -1.813 -3.72 0.026 -1.86
 -1.863 0.615 -1.594 -2.443 -2.081 0.15 1.16 -1.331 -1.002 -0.146
 1.452 -1.129 -3.462 -2.911 -1.191 -2.271 -1.51 -5.307 -2.082 -4.116
 -4.899 -5.507 0.625 -2.824 -4.286 -2.889 -4.041 -0.606 -1.711 -2.445
 -2.569 1.956 0.266 -2.345 0.396 -1.835 0.256 -4.244 -1.395 -3.448
 -3.748 -2.307 -2.354 -0.762 0.394 0.072 2.465 -0.387 -3.477 -3.617
 -1.263 -4.947 4.651 -1.824 -2.195 -2.318 -3.548 -1.133 -0.899 -0.195
 -4.523 -3.852 -2.731 -3.521 -0.771 -1.381 -4.003 -2.823 -4.129 -1.865
 -5.519 -1.475 -0.033 1.304 -4.437 -6.631 0.277 -4.96 -5.811 -0.521
 -2.787 -4.88 -2.126 -3.739 -0.856 -3.335 -2.048 0.663 -1.667 -1.206
 -5.63 -2.947 -5.45 -2.661 -2.257 -4.133 -4.728 -1.695 -1.605 -0.128

[p m shankar](#)

data (Millington)

Data set contains -ve values

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

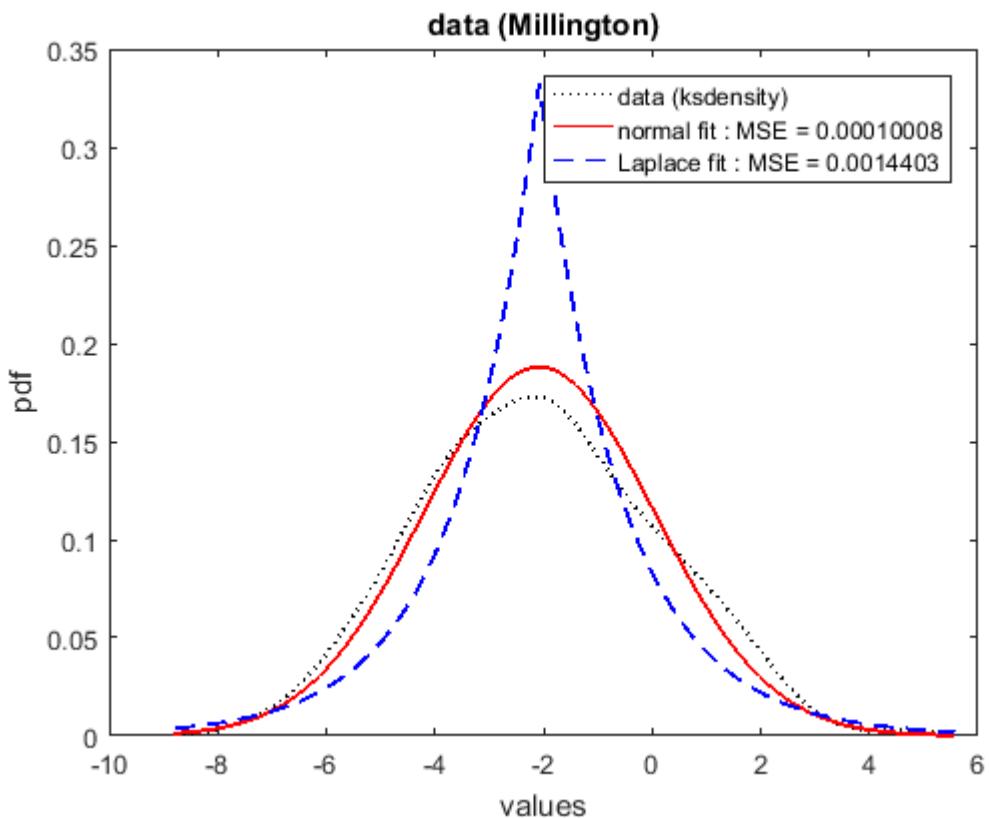
$\mu = -2.0795$ $\sigma = 2.1233$ normal fit : MSE = 0.00010008

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

$a = -2.0795$ $b = 1.5014$ Laplace fit : MSE = 0.0014403

best fit: normal

[p m shankar](#)



data (Morris)

5.681	0.739	2.648	3.159	12.984	6.815	11.145	2.741	1.19	0.086
3.945	1.669	5.625	0.851	1.532	5.184	2.352	1.775	0.987	5.571
6.175	3.607	2.602	6.148	6.098	2.111	4.43	2.838	2.422	11.219
1.909	1.954	3.341	2.046	5.044	0.766	2.046	3.23	1.574	0.772
2.506	1.306	3.913	1.877	0.608	1.446	1.082	0.544	1.683	2.891
8.107	1.602	1.509	5.073	5.51	2.227	2.958	6.516	4.496	2.925
0.983	2.983	5.093	1.559	3.239	0.932	3.102	4.078	5.427	0.596
1.861	2.411	1.196	1.792	1.064	2.697	3.941	2.302	2.08	0.725
1.636	3.279	4.04	1.566	1.866	3.462	0.744	2.423	3.243	2.458
1.149	5.613	4.909	1.567	3.564	2.164	4.082	1.525	1.297	3.495
1.898	3.47	0.901	6.373	1.757	10.83	2.199	2.432	3.581	6.542
3.336	0.375	2.517	4.601	1.605	4.227	3.06	3.519	2.767	3.169
2.994	6.799	0.866	2.41	7.408	2.944	8.138	0.358	3.421	3.899
1.265	5.383	3.731	2.418	3.445	1.68	5.516	3.278	1.887	3.139
0.261	1.613	1.776	3.241	5.457	3.655	0.907	4.563	1.983	4.229
4.495	4.908	2.705	2.88	0.973	3.565	1.156	0.762	5.209	3.024
0.803	1.194	5.937	0.595	6.102	0.825	16.011	5.649	2.496	2.292
1.217	4.237	2.674	3.177	6.73	3.29	1.518	2.301	0.407	1.616
0.892	2.613	0.883	1.274	2.038	3.102	2.812	6.237	2.812	1.633
7.534	2.411	10.866	1.776	0.675	2.975	1.445	1.874	1.225	3.76

p m shankar

data (Morris)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right) \frac{x^{b-1}}{a} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 3.5111 b = 3.5111 Weibull fit : MSE = 0.00012203

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

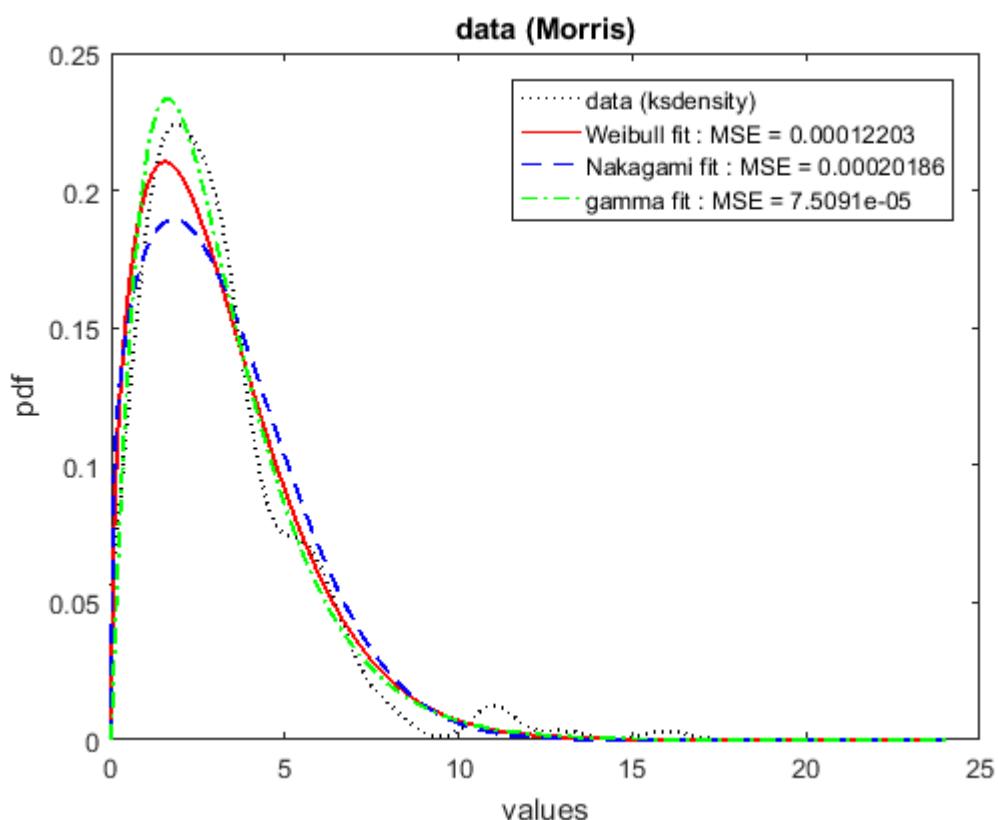
m = 0.62954 Ω = 15.6936 Nakagami fit : MSE = 0.00020186

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{a-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 2.0496 b = 1.545 gamma fit : MSE = 7.5091e-05

best fit: gamma

p m shankar



data (Muhammad)

0.394 5.689 5.119 0.93 -5.333 -7.141 -7.989 -3.116 -0.499 -3.415
-0.188 -5.11 -2.411 -2.088 -2.045 -3.286 -0.41 0.002 -4.123 -0.632
-6.678 -8.889 0.658 -3.587 -0.486 -0.958 -9.16 3.892 -2.378 0.684
-6.187 -2.875 -2.405 3.962 -4.478 -4.955 -1.044 0.122 -8.837 2.081
-1.584 -4.635 -1.222 -7.184 2.383 -5.053 -1.983 -2.784 -1.046 -0.286
-4.106 3.426 -6.36 2.311 0.635 2.059 -1.809 -2.019 -8.018 -6.675
-3.561 -0.475 -0.884 0.667 -3.136 0.046 0.583 -0.73 -4.26 3.551
0.292 -1.172 -2.888 1.381 -1.724 0.166 -3.206 -2.871 1.929 -3.667
-1.104 -3.214 -6.431 1.929 -0.137 -8.446 -3.23 -6.64 3.014 0.115
1.158 -2.175 -1.164 -9.534 -3.963 -3.653 -1.415 -4.229 2.689 -10.522
-1.113 -7.428 -8.948 -0.589 -7.658 1.64 2.182 -4.103 -5.272 5.39
2.376 -3.973 -0.846 -1.884 -0.711 -0.982 -3.403 -5.233 -4.29 -5.499
-3.057 1.302 1.051 -1.885 -1.788 -8.134 -4.138 -3.579 -2.414 -4.111
-1.576 -5.601 -3.854 -4.174 -5.631 0.663 -6.334 -1.829 -1.874 -3.013
-2.191 -4.332 -0.714 -6.867 2.093 -1.732 2.793 -4.911 -2.292 -1.082
-1.602 -0.466 -1.047 -4.899 -0.428 1.158 0.15 -2.896 0.329 -5.177
-5.275 -1.046 -4.001 -0.883 -2.152 -7.239 -0.743 0.62 -1.966 0.971
0.086 0.351 -1.741 -1.821 -0.291 0.717 2.319 -0.496 1.11 -8.078
-3.916 0.791 -5.556 -0.232 -1.704 -3.281 -1.319 -0.66 -0.874 -2.084
-5.035 -2.988 0.062 0.345 -3.831 -0.671 -4.055 -2.467 -1.186 -1.683

[p m shankar](#)

data (Muhammad)

Data set contains -ve values

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

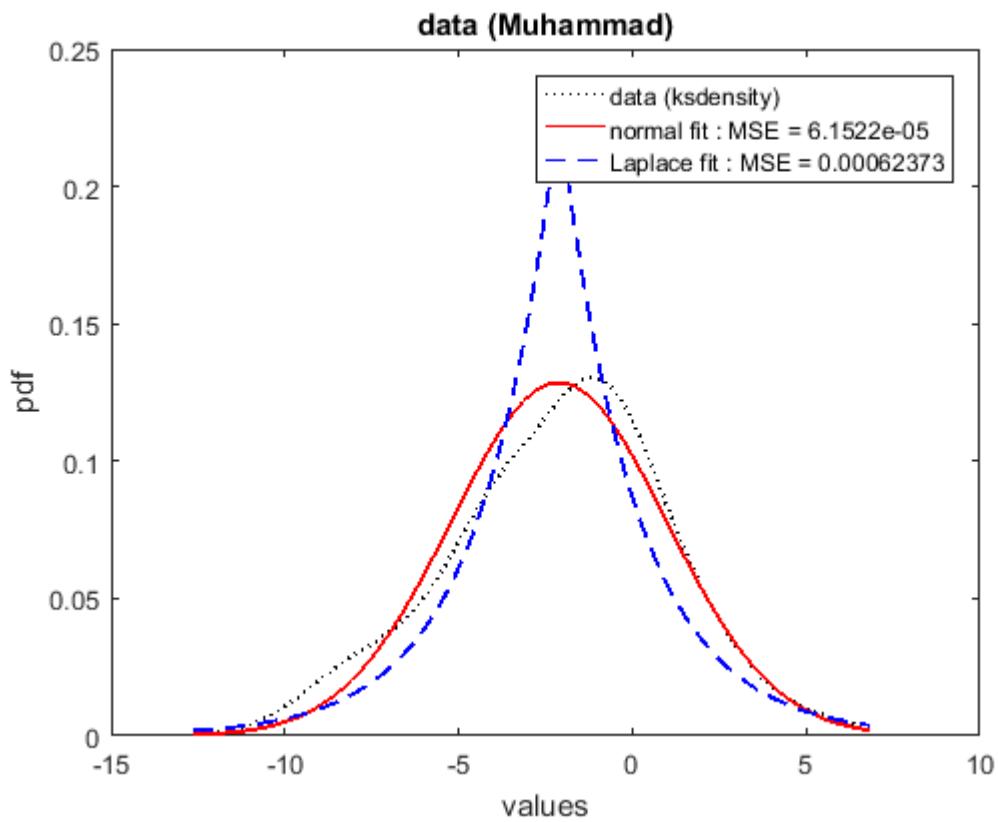
$\mu = -2.1118$ $\sigma = 3.1037$ normal fit : MSE = 6.1522e-05

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

$a = -2.1118$ $b = 2.1946$ Laplace fit : MSE = 0.00062373

best fit: normal

[p m shankar](#)



data (Neal)

2.391	4.076	1.648	1.916	0.513	0.847	3.591	3.997	2.726	7.365
0.366	6.209	6.069	1.966	1.374	0.898	0.234	5.475	0.539	0.358
1.405	0.667	1.549	0.789	0.282	3.215	1.167	0.94	1.935	2.037
3.582	6.603	1.581	10.292	3.881	0.204	2.654	5.335	5.559	1.14
0.918	2.33	0.099	5.084	1.993	7.581	0.257	5.046	1.618	6.213
1.741	2.33	5.57	3.422	0.133	4.356	0.009	1.038	1.292	4.691
3.563	2.827	0.399	1.496	0.937	2.854	0.277	1.262	2.476	1.244
1.508	2.226	1.712	1.926	2.561	3.967	0.627	0.435	1.27	2.514
3.052	0.203	2.336	2.728	4.31	0.769	1.379	0.197	1.136	0.435
0.939	0.41	0.471	1.408	0.247	0.505	1.633	1.759	8.115	2.692
6.814	3.483	1.613	2.728	0.457	1.312	3.901	0.729	0.762	1.304
2.788	1.436	2.636	6.86	0.781	5.73	0.571	1.924	10.309	0.482
0.597	4.233	0.807	1.458	0.095	6.757	0.381	3.896	7.958	10.111
0.349	1.216	0.325	10.247	0.763	2.869	1.367	3.129	2.128	0.795
8.882	10.642	0.931	1.991	0.265	0.924	3.801	8.128	0.465	1.043
7.906	0.468	9.558	7.807	0.322	1.391	0.22	3.268	0.935	4.947
1.104	1.427	0.609	1.512	5.531	0.717	2.803	3.174	0.411	2.644
10.053	0.494	0.742	6.731	0.438	0.62	0.936	0.111	3.048	0.843
2.541	2.371	3.332	1.073	3.451	2.445	0.157	0.08	0.498	1.352
5.463	2.249	6.425	2.787	0.976	0.174	3.528	2.148	0.865	1.18

p m shankar

data (Neal)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right) \frac{x^{b-1}}{a} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 2.589 b = 2.589 Weibull fit : MSE = 0.00063216

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

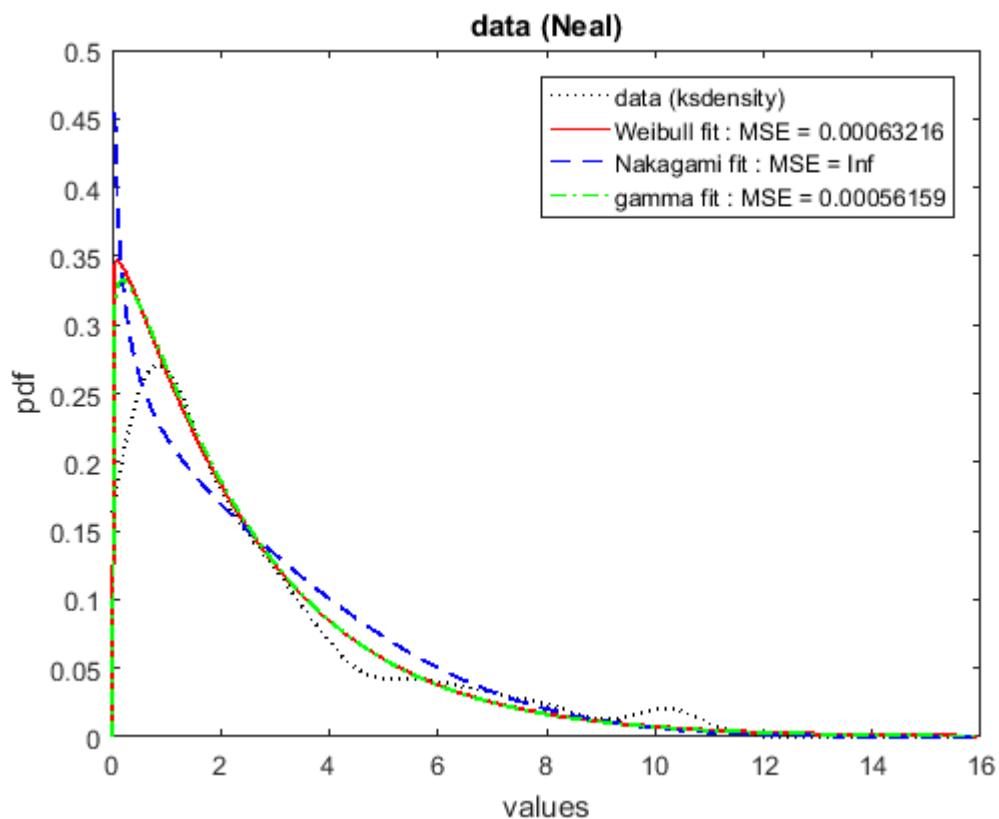
m = 0.38267 Ω = 12.7676 Nakagami fit : MSE = Inf

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{a-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 1.0787 b = 2.3683 gamma fit : MSE = 0.00056159

best fit: gamma

p m shankar



data (Nguyen)

-3.438 -0.117 -3.128 -6.691-7.801 -2.187-7.991 -2.484 -1.521 -0.283
-6.415 -4.691 2.869 -5.617-5.035 -1.936-5.484 -3.948 1.319 -2.305
-2.056 -6.866 -6.817 -5.408-5.794 -6.92 -6.874 -3.04 -2.445 -2.746
-3.92 -1.797 -2.175 0.307 0.301 0.663 -2.54 -1.176 -5.232 -4.832
-2.335 -1.416 -5.78 -4.441 -4.83 -2.247-2.544 -0.822 -2.831 -0.476
-0.376 -10.538-5.165 -2.726-6.828 -2.569-5.079 -5.249 0.061 1.886
-4.479 -2.927 -1.677 -6.999-4.249 1.052 0.508 -6.982 2.349 -1.573
-4.447 3.287 0.279 -3.549-5.055 -2.523-5.364 -4.257 -7.216 -2.078
-3.778 -3.565 -2.49 -7.878-2.214 -8.167-4.037 0.06 -2.658 -2.294
-2.362 -4.933 0.915 -5.107-3.694 -3.048-5.002 -1.972 -4.3 0.102
3.111 -6.023 -5.79 -0.722-7.457 0.501-5.689 -1.818 -1.366 -3.993
-5.619 -8.433 -1.986 2.129-1.259 0.638-2.836 -4.328 -2.493 -4.537
1.02 -4.468 -4.593 -1.544-4.092 -2.206-7.182 -5.297 -4.766 -1.404
-3.646 -2.096 -5.272 -2.708 -4.8 -8.08 -3.937 3.231 -8.422 -3.919
-0.306 -5.952-10.895 0.22 -5.555 0.289-0.509 -3.315 -6.643 -0.325
-2.821 -2.24 -0.719 -0.816-0.618 -3.172-0.559 -3.1 -4.819 -7.392
-4.603 -0.636 2.625-10.3473.327 -2.424-8.838 -3.821 -3.821 0.979
-3.778 -4.78 -1.501 -8.375-7.658 0.844 -1.78 -2.791 0.527 -5.192
-0.123 -1.523 1.129 -5.5 3.512 -1.792-4.374 -3.959 -4.784 -2.284
0.8 -1.304 -2.823 -5.621-4.025 -14.167-1.648 -6.133 -1.884 -4.404

p m shankar

data (Nguyen)

Data set contains -ve values

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

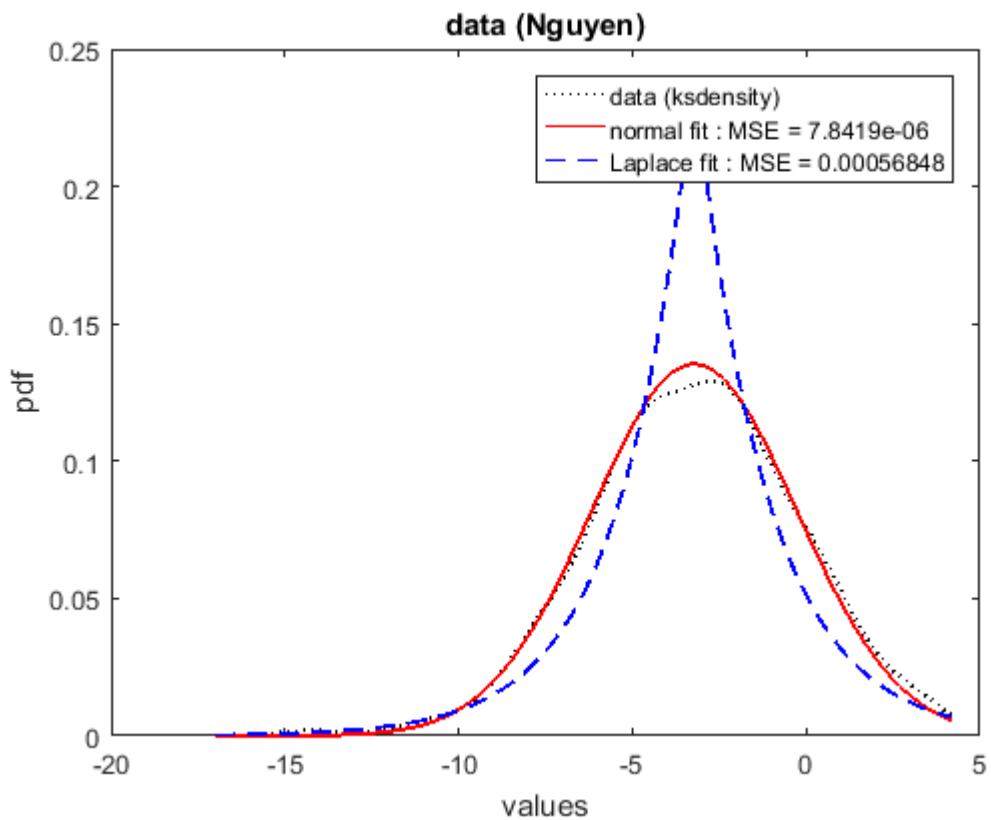
$\mu = -3.2194$ $\sigma = 2.9484$ normal fit : MSE = 7.8419e-06

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

$a = -3.2194$ $b = 2.0849$ Laplace fit : MSE = 0.00056848

best fit: normal

p m shankar



data (newt)

2.511	0.87	0.903	1.726	1.03	0.646	1.457	0.387	0.264	3.465
1.978	1.971	0.709	1.828	0.85	0.312	0.709	0.825	1.355	1.094
1.404	0.173	0.966	3.862	0.638	2.411	1.436	1.757	1.088	0.753
0.823	3.028	1.213	0.505	2.988	0.517	0.795	0.861	2.224	0.972
0.505	2.693	1.576	1.334	1.897	1.138	1.657	0.907	1.903	1.198
2.868	0.7	0.391	1.11	1.305	1.92	1.002	0.761	2.02	0.656
2.113	0.583	1.775	1.611	1.479	1.842	0.524	0.81	2.725	0.294
1.389	1.131	1.229	0.116	1.557	0.885	1.875	1.605	1.71	1.615
0.777	0.797	0.823	0.191	2.488	1.078	1.284	1.23	1.818	0.714
1.205	1.214	1.756	0.285	0.783	1.096	2.215	0.761	1.519	1.68
0.796	1.097	0.614	0.956	1.431	0.268	2.133	1.12	2.125	3.077
1.997	1.931	1.181	0.849	0.942	1.104	2.487	0.326	0.056	2.306
0.944	1.243	0.46	1.571	1.158	2.277	2.388	1.992	1.225	1.582
1.039	2.588	1.535	1.208	2.584	2.008	1.025	0.468	1.46	1.633
3.349	2.546	0.388	1.708	1.629	2.266	1.414	0.8	1.766	3.006
0.823	1.568	0.411	0.863	0.281	2.08	1.005	1.678	1.506	2.023
0.137	1.018	1.094	0.752	0.4	0.946	0.59	1.024	1.438	1.352
2.15	0.507	2.267	2.378	1.479	1.002	0.779	1.317	0.415	0.773
1.515	0.943	1.502	1.841	1.041	1.491	0.233	2.145	1.257	0.929
1.93	0.922	1.702	1.891	1.138	2.021	0.745	1.161	1.056	0.87

p m shankar

data (newt)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right) \frac{x^{b-1}}{a} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 1.5094 b = 1.5094 Weibull fit : MSE = 0.00037414

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

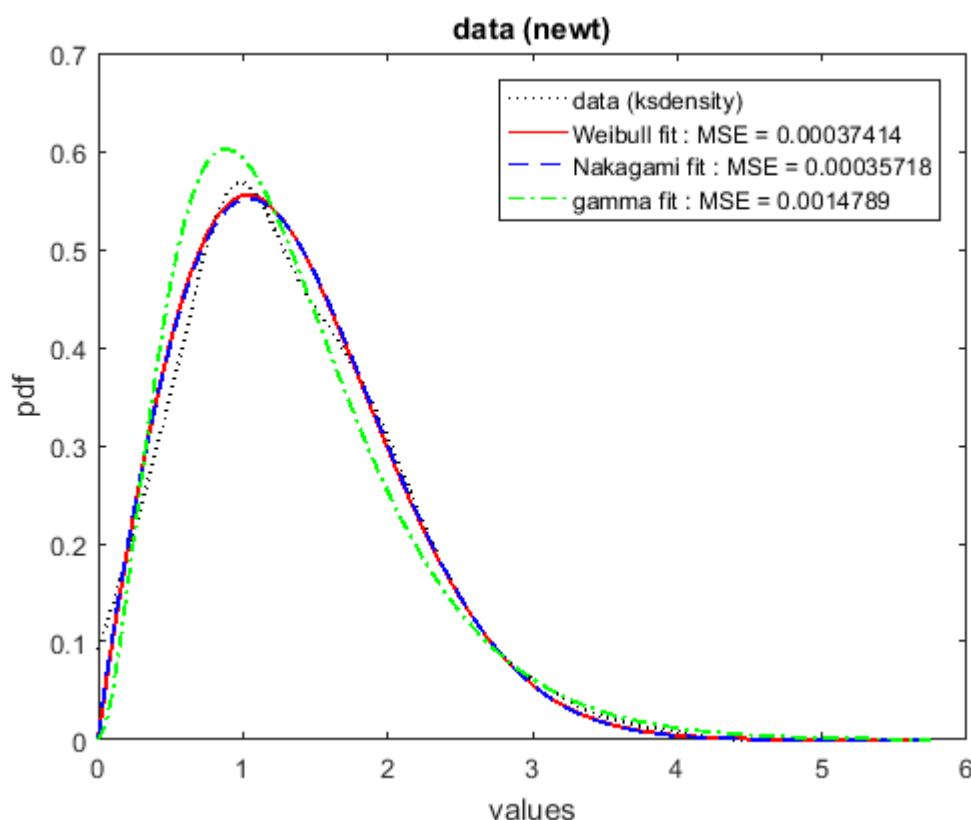
m = 0.94529 Ω = 2.315 Nakagami fit : MSE = 0.00035718

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 2.9364 b = 0.45612 gamma fit : MSE = 0.0014789

best fit: Nakagami

p m shankar



data (Odemis)

0.3	5.26	2.084	11.409	5.364	3.316	6.351	6.61	1.792	14.844
1.411	6.507	1.277	1.987	0.394	4.938	6.43	0.211	5.16	18.687
3.359	1.815	1.615	9.306	3.16	5.204	2.031	4.349	2.1	0.317
7.963	5.773	10.18	3.762	2.175	9.014	13.305	16.248	1.265	6.562
5.353	4.801	1.025	5.645	4.965	3.8	15.81	8.16	0.263	0.869
7.85	3.358	1.331	5.165	0.758	1.779	8.147	1.952	9.241	1.573
3.701	2.21	3.066	3.974	7.473	6.947	1.53	6.025	12.987	1.86
2.733	2.857	3.644	8.529	1.329	6.753	6.109	0.014	5.118	15.231
2.357	10.739	1.814	2.18	3.767	4.417	10.673	3.944	3.246	2.412
13.556	4.212	3.014	3.754	13.954	2.899	7.175	1.062	2.838	7.849
0.816	7.355	0.972	6.676	2.383	1.866	1.596	4.815	6.073	0.502
6.111	1.556	5.025	1.512	8.308	2.959	3.689	7.629	3.902	1.072
3.643	2.29	42.736	3.192	8.982	4.497	9.393	3.155	2.536	12.086
1.387	12.237	9.343	12.901	6.434	8.462	12.026	10.518	5.229	7.302
9.293	11.505	0.27	2.216	2.107	0.673	2.431	12.505	9.825	2.668
10.312	14.253	2.234	5.523	7.469	0.993	3.525	3.837	7.08	5.145
2.046	2.298	1.724	6.315	0.595	7.754	1.962	1.719	7.307	9.035
5.099	1.321	8.544	5.093	6.492	10.303	6.288	10.046	0.356	8.781
1.776	2.991	0.873	3.546	2.936	2.901	2.102	11.154	0.604	9.741
0.068	7.442	6.013	6.377	1.542	12.718	1.254	0.748	2.49	12.609

[p m shankar](#)

data (Odemis)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right)^{\frac{b}{a}} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 5.7078 b = 5.7078 Weibull fit : MSE = 3.8528e-05

$$f_X(x) = 2\left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

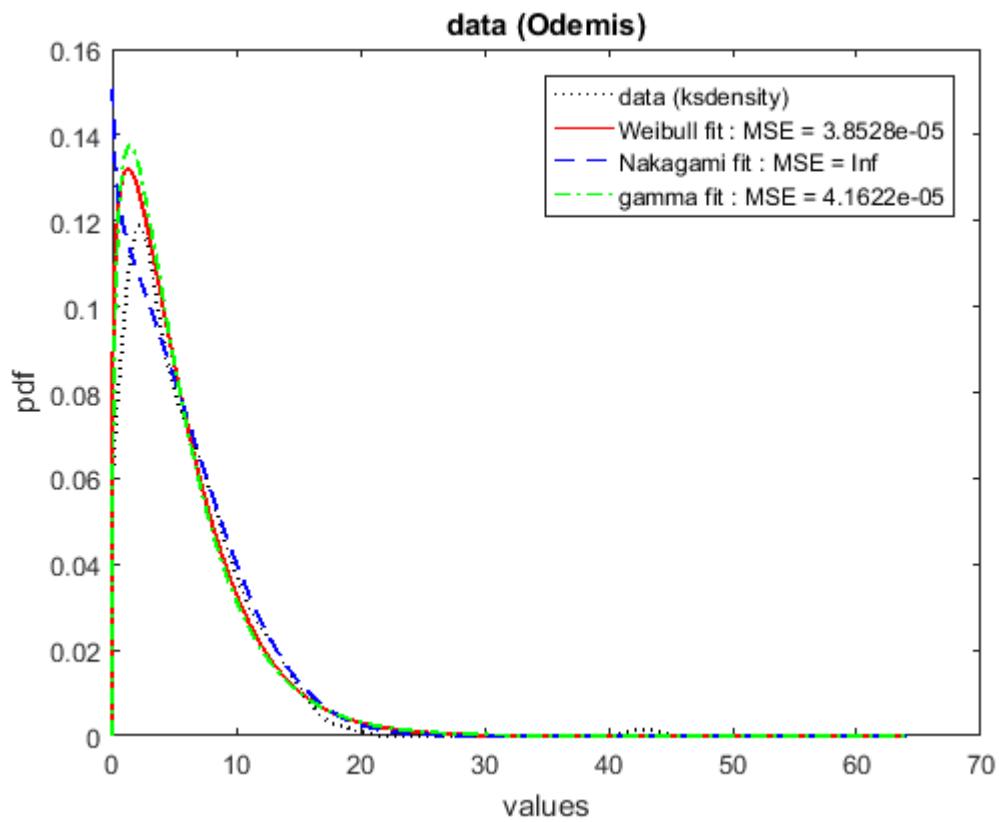
m = 0.46 Ω = 51.3294 Nakagami fit : MSE = Inf

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 1.3596 b = 3.9483 gamma fit : MSE = 4.1622e-05

best fit: Weibull

[p m shankar](#)



data (Owsiany)

1.816	1.941	1.504	0.883	1.252	2.672	1.113	1.657	1.412	0.907
0.463	0.688	1.548	0.726	2.519	1.83	0.305	0.931	0.42	1.027
0.383	0.854	0.909	1.578	1.222	0.956	1.044	1.448	2.55	2.654
2.784	0.941	0.866	0.451	2.569	0.557	2.064	1.452	1.467	0.713
1.083	0.45	0.708	1.113	0.619	1.548	0.63	1.883	1.79	0.177
2.653	0.666	1.083	1.674	1.081	2.847	0.848	0.852	1.824	1.365
1.388	1.162	2.29	1.724	0.912	0.473	2.234	0.67	1.522	1.548
1.21	3.061	1.143	0.512	0.989	1.301	2.026	0.415	0.421	2.607
0.626	2.303	2.66	1.504	1.031	0.459	1.653	1.223	1.244	1.831
1.028	1.222	0.79	2.066	0.326	1.584	1.39	1.923	0.702	1.105
1.753	0.331	0.968	0.352	1.974	0.912	1.198	1.067	1.536	1.07
0.475	0.62	1.073	0.983	1.294	3.018	1.704	1.908	1.324	1.76
0.772	0.389	1.827	0.201	0.621	1.227	0.652	1.416	0.336	0.977
1.138	0.246	0.871	1.921	1.254	1.575	0.723	0.598	2.131	2.515
0.494	1.491	0.852	0.65	0.781	1.566	1.707	1.38	2.444	0.371
1.5	1.599	1.549	1.26	1.965	0.328	1.045	0.417	0.885	2.314
1.563	0.741	2.774	1.088	0.911	0.804	2.269	1.489	0.399	1.571
1.039	1.868	0.619	2.643	0.449	1.571	0.949	0.899	2.234	0.983
2.345	0.306	0.766	1.134	2.021	1.015	1.542	1.092	0.982	1.242
1.485	0.403	1.231	1.013	1.382	1.406	0.95	2.272	2.08	1.194

p m shankar

data (Owsiany)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right) \frac{x^{b-1}}{a} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 1.4499 b = 1.4499 Weibull fit : MSE = 0.00062622

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

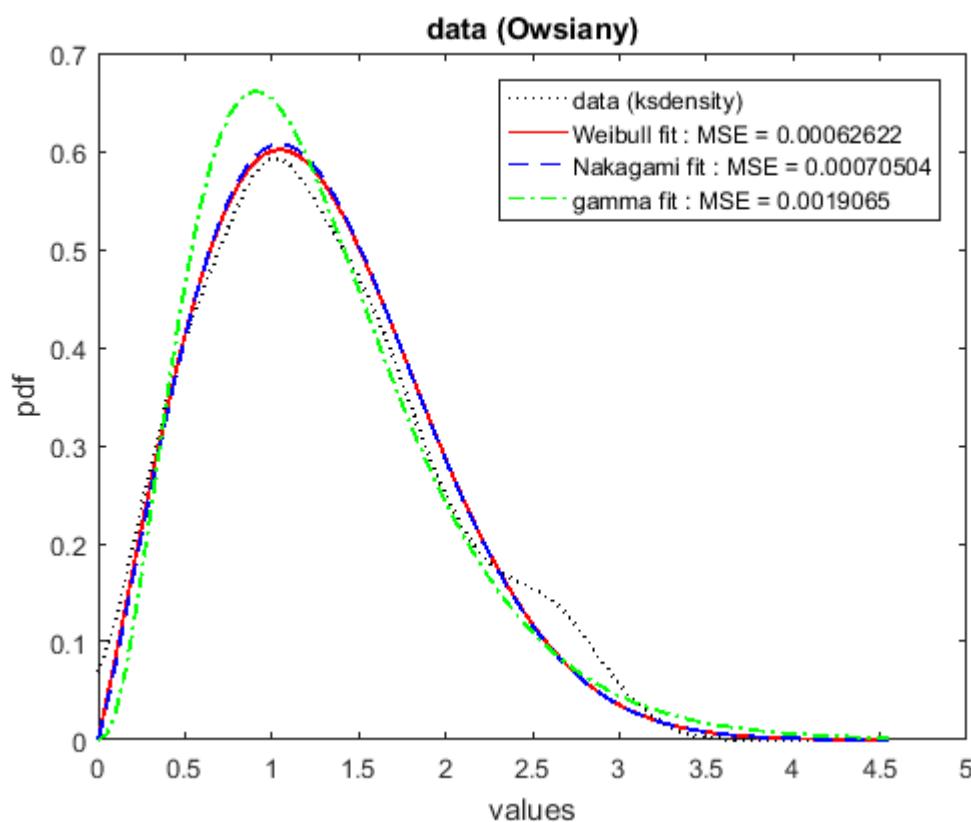
m = 1.0557 Ω = 2.08 Nakagami fit : MSE = 0.00070504

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 3.4162 b = 0.37509 gamma fit : MSE = 0.0019065

best fit: Weibull

p m shankar



data (Panagiotou)

1.698	1.002	0.955	1.412	1.625	1.233	1.349	1.08	0.43	1.424
0.607	0.985	2.265	1.772	1.832	1.111	2.311	1.455	1.223	2.4
1.654	1.037	1.653	0.927	1.44	1.592	1.088	0.788	1.219	1.506
1.348	1.308	1.743	0.833	0.878	1.669	0.919	1.315	1.133	1.036
2.17	1.62	1.084	1.051	1.648	1.596	1.426	1.418	0.599	1.499
0.882	0.725	1.537	1.563	1.172	2.306	1.387	0.803	0.859	0.953
2.363	0.476	1.92	2.497	1.57	1.678	1.088	1.631	1.542	1.572
1.392	1.794	1.2	1.478	1.544	0.998	1.378	1.144	0.757	1.613
1.238	0.88	1.402	0.969	1.648	1.698	1.001	1.198	1.769	1.322
0.611	1.022	0.497	0.631	0.91	1.803	1.299	1.553	1.423	0.786
0.499	1.542	0.695	2.372	1.526	2.046	0.941	1.416	1.536	1.584
1.127	0.856	1.597	0.346	1.547	0.509	1.307	1.492	1.427	0.93
1.1	1.423	0.782	0.687	0.967	1.104	1.302	1.058	1.181	1.684
1.661	1.204	0.505	0.869	2.033	1.621	0.535	1.546	0.732	1.217
1.485	2.33	1.448	0.642	1.352	1.104	1.753	0.523	1.846	1.076
1.463	0.82	2.128	0.837	1.433	0.889	1.558	1.635	0.466	1.275
2.006	0.364	1.256	1.651	0.889	1.64	1.529	1.45	1.591	0.961
0.817	0.356	1.198	0.842	1.32	1.22	0.891	1.002	1.731	1.698
0.465	0.528	1.96	1.674	2.48	1.533	0.743	1.966	1.472	1.562
0.997	0.673	1.072	1.143	1.825	1.58	1.38	0.609	1.515	0.997

p m shankar

data (Panagiotou)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right)^{\frac{b}{a}} x^{b-1} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 1.44449 b = 1.44449 Weibull fit : MSE = 0.0024929

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

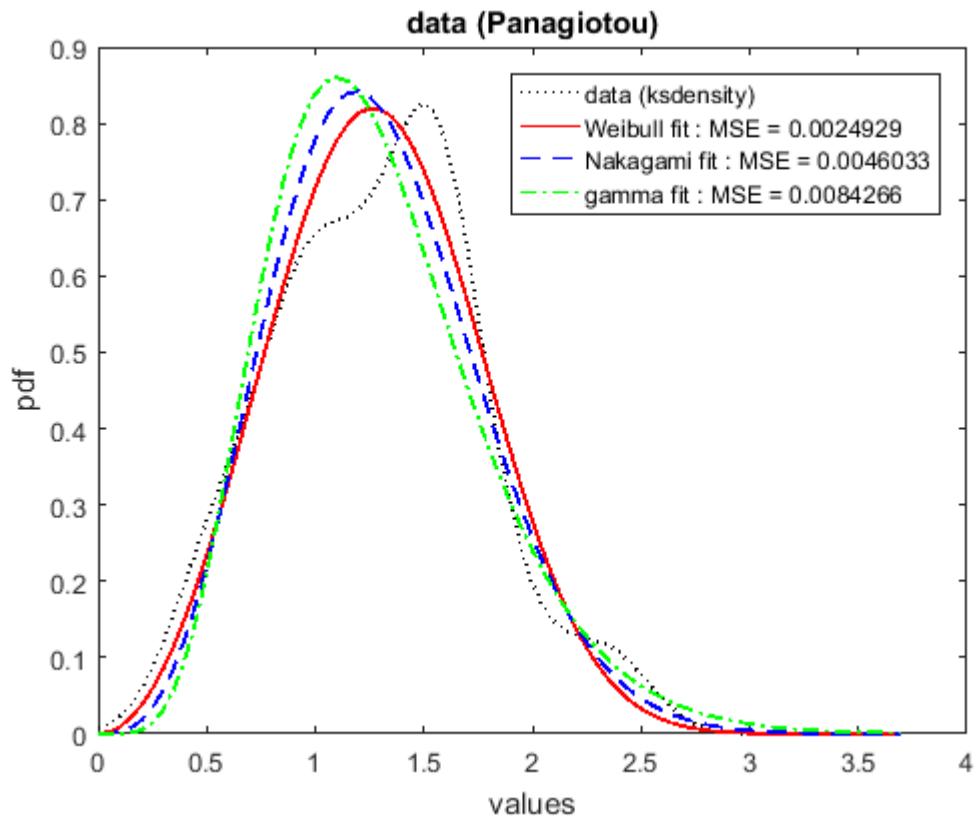
m = 1.9816 Ω = 1.8806 Nakagami fit : MSE = 0.0046033

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 6.7928 b = 0.18991 gamma fit : MSE = 0.0084266

best fit: Weibull

p m shankar



data (Papadimitriou)

```

-0.859 -5.694 -3.305  2.64  -2.76  1.826 -4.917  0.709  2.032 -2.338
-7.252 -4.642 -4.275 -6.191 -8.047-5.871 -5.286 -3.462 -2.974  2.319
-6.202 -8.011 -2.389 -2.779 -6.027  3.035 -4.266 -5.386 -8.335  0.699
 1.897 -1.308 -5.136  2.762 -6.881 -2.94 -4.474 -4.745  2.07  2.591
-5.926 -2.083 -3.752 -1.072 -10.993 1.663 -1.027 -4.493 -3.874 -2.339
-5.095 -4.881 -2.428 -1.887  3.399  1.349  1.308 -0.188 -0.227 -0.274
-2.813 -7.177 -9.66 -3.436 -5.191  0.309 -7.605 -6.467 -5.167 -4.774
-5.396 -3.826 -8.755 -2.264 -0.48 -5.628  2.259 -1.592 -1.164 -3.693
-2.56 -3.504 -6.201  2.671 -2.948-5.746  0.849  0.013 -0.495 -8.243
 0.528 -9.519 -2.76 -4.383 -5.982-5.744 -2.719 -5.58  0.039 -2.791
-2.794  0.922 -2.392 -3.665 -3.121  0.224  1.74 -1.997 -1.503 -0.219
 2.179 -1.693 -5.193 -4.367 -1.786-3.407 -2.266 -7.96 -3.122 -6.175
-7.349 -8.261  0.937 -4.236 -6.428-4.334 -6.061 -0.909 -2.567 -3.667
-3.854  2.934  0.399 -3.517  0.594-2.752  0.384 -6.367 -2.093 -5.172
-5.622 -3.461 -3.531 -1.143  0.591  0.107  3.697 -0.581 -5.215 -5.425
-1.894 -7.42  6.977 -2.735 -3.292-3.477 -5.323 -1.699 -1.349 -0.293
-6.785 -5.778 -4.096 -5.282 -1.157-2.072 -6.004 -4.234 -6.193 -2.798
-8.279 -2.212 -0.05  1.956 -6.656-9.946  0.415 -7.44 -8.716 -0.781
-4.181 -7.319 -3.189 -5.609 -1.284-5.003 -3.072  0.995 -2.5 -1.81
-8.445 -4.421 -8.175 -3.991 -3.385 -6.2 -7.091 -2.542 -2.407 -0.193

```

p m shankar

data (Papadimitriou)

Data set contains -ve values

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

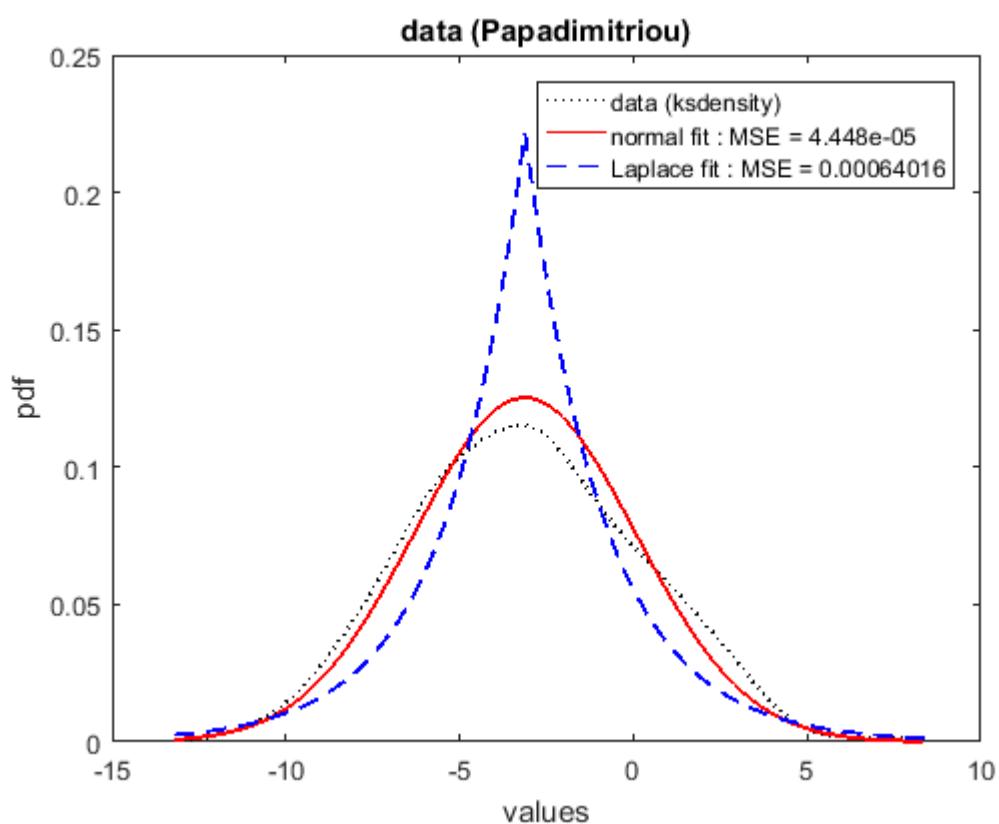
$\mu = -3.1192$ $\sigma = 3.1849$ normal fit : MSE = 4.448e-05

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

$a = -3.1192$ $b = 2.2521$ Laplace fit : MSE = 0.00064016

best fit: normal

p m shankar



data (Peng)

0.985	0.869	1.533	1.61	0.497	1.689	1.839	1.028	0.62	1.57
2.175	0.699	1.566	1.333	0.918	1.059	2.105	0.296	1.728	1.519
0.457	2.086	1.661	1.23	0.9	1.075	1.575	2.151	1.301	1.424
1.391	1.519	1.404	0.953	0.833	1.023	0.613	1.028	1.18	1.358
1.025	0.473	2.214	1.354	1.469	1.649	1.048	1.692	2.161	1.493
1.269	0.937	0.645	1.964	0.646	0.874	1.476	0.94	1.038	0.789
1.233	1.204	0.869	0.654	0.303	0.53	1.045	2.464	0.928	1.529
0.749	0.968	0.588	0.719	2.19	1.729	1.53	2.361	1.177	0.941
1.411	0.953	1.286	2.899	0.647	1.575	0.477	1.166	0.935	1.142
2.046	1.287	1.912	1.365	2.742	1.134	1.119	0.797	1.737	1.295
1.513	1.019	2.231	0.71	1.575	1.212	0.904	1.94	1.26	1.669
1.567	1.531	0.831	1.023	2.098	1.142	1.204	1.143	1.296	1.323
1.952	0.62	0.94	0.952	1.186	0.465	1.461	0.474	1.459	1.321
0.51	1.139	1.69	1.996	1.342	1.094	0.748	0.98	0.93	1.011
1.042	2.223	0.897	2.441	0.833	0.649	0.882	2.648	1.613	1.447
0.923	1.301	0.824	1.741	1.614	2.07	1.415	1.232	0.481	1.943
2.083	0.908	1.918	1.244	0.745	1.497	1.879	1.389	0.698	1.777
1.867	1.117	1.819	0.475	0.545	1.837	1.148	1.694	0.886	1.057
0.576	1.55	2.174	1.744	1.043	0.816	2.734	1.196	1.926	1.941
1.656	0.468	0.926	1.751	2.011	1.412	0.997	1.362	1.524	1.269

[p m shankar](#)

data (Peng)

[Data set is completely positive](#)

$$f_X(x) = \left(\frac{b}{a}\right)^{\frac{x}{a}} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 1.47 b = 1.47 [Weibull fit : MSE = 0.00062463](#)

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

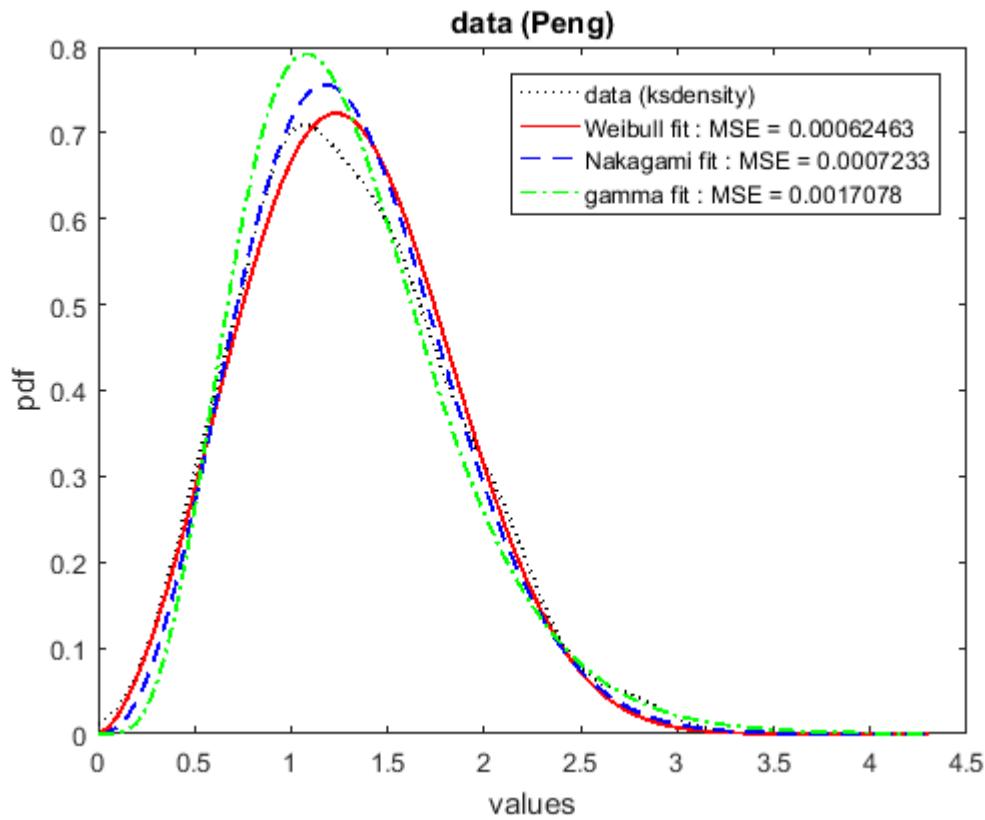
m = 1.6619 Ω = 1.9799 [Nakagami fit : MSE = 0.0007233](#)

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 5.7513 b = 0.22684 [gamma fit : MSE = 0.0017078](#)

[best fit: Weibull](#)

[p m shankar](#)



data (Peschansky)

0.846	1.067	0.865	0.572	1.392	0.861	0.682	2.361	1.016	1.299
0.991	0.714	1.276	0.97	0.948	1.165	1.302	1.309	1.771	0.433
0.977	0.886	1.963	1.432	0.657	1.33	1.89	0.757	2.165	0.813
1.423	1.52	1.422	0.555	1.275	1	0.653	1.371	1.626	1.276
1.143	0.63	1.274	0.329	1.776	2.17	1.666	2.725	1.48	1.859
1.068	1.201	2.525	0.895	1.843	1.288	0.84	2.008	1.282	0.551
1.515	1.452	1.365	1.652	1.425	1.04	1.433	1.055	0.929	1.052
1.699	1.683	0.304	0.479	1.288	1.28	1.668	0.986	0.979	0.849
1.556	1.274	2.178	1.741	2.025	1.189	0.394	2.5	0.785	1.397
1.145	1.27	1.083	1.528	0.467	1.19	1.466	2.468	0.894	0.858
1.24	1.019	1.426	1.909	0.713	0.303	1.301	1.739	1.867	1.147
1.622	1.631	0.597	1.734	1.232	1.871	0.482	0.313	2.247	0.508
0.945	0.856	0.917	2.471	1.178	0.143	0.93	0.62	2.492	0.831
1.303	1.007	1.947	0.372	1.12	1.281	0.659	0.996	0.238	1.851
1.18	1.355	1.2	1.915	1.903	1.605	2.065	1.372	2.752	0.853
1.507	1.044	1.283	1.377	0.97	1.983	2.117	2.633	1.539	0.21
1.239	1.189	0.855	0.836	1.044	0.407	1.619	1.843	1.037	0.411
0.356	0.788	1.406	0.743	1.876	1.056	0.568	1.916	1.037	2.29
1.419	0.757	2.246	0.94	1.892	1.376	1.368	1.084	0.718	0.996
1.569	1.232	1.93	1.276	1.871	0.94	0.759	0.625	1.083	1.746

p m shankar

data (Peschansky)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right) \frac{x^{b-1}}{a} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 1.4276 b = 1.4276 Weibull fit : MSE = 0.00061677

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

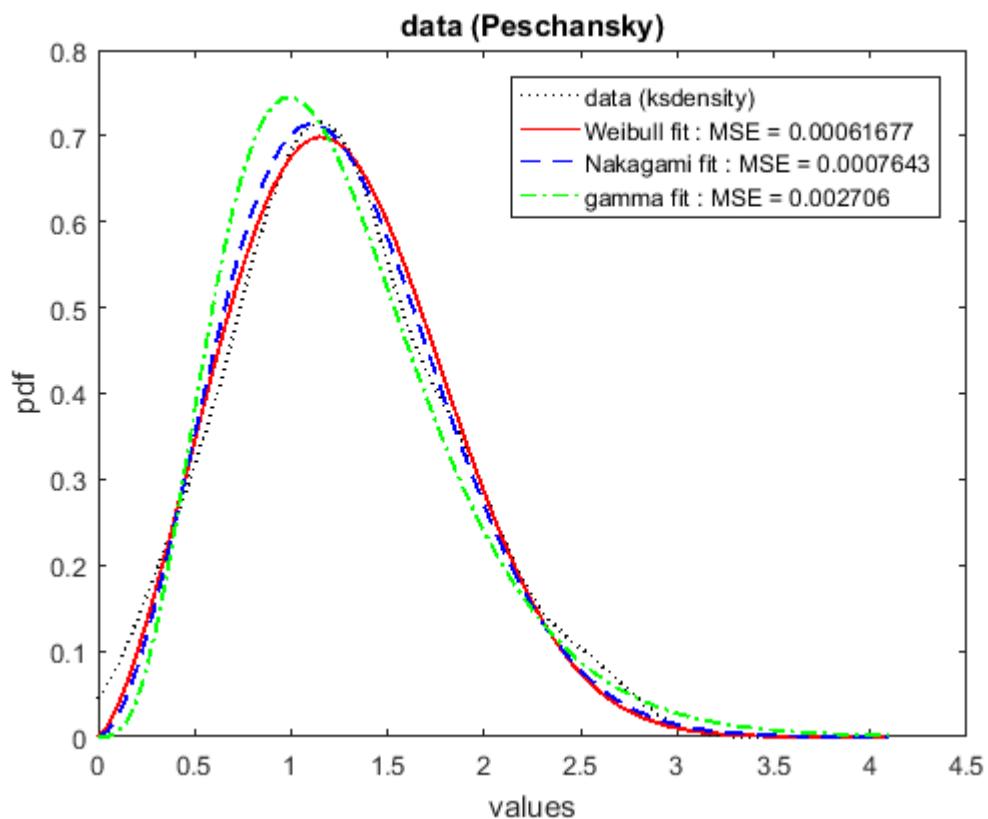
m = 1.3973 Ω = 1.9042 Nakagami fit : MSE = 0.0007643

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 4.5793 b = 0.27645 gamma fit : MSE = 0.002706

best fit: Weibull

p m shankar



data (Pham)

1.477	0.434	1.791	0.915	1.566	1.613	1.255	0.479	1.3	0.565
0.769	1.837	1.733	0.882	1.027	1.664	2.693	3.134	0.359	1.106
1.686	1.231	0.508	0.972	1.586	2.394	1.134	2.134	1.087	1.026
0.986	0.733	1.096	0.75	1.621	1.99	2.604	1.459	1.827	2.223
0.427	1.209	0.377	1.106	0.991	0.857	0.554	0.625	0.925	1.863
1.578	1.042	1.04	1.243	1.371	2.331	0.582	1.865	1.6	2.731
0.682	1.145	1.764	0.539	2.262	0.439	1.562	0.388	0.807	1.351
0.733	0.84	2.264	1.45	1.802	1.379	0.243	0.263	0.065	1.587
2.166	2.491	1.166	1.785	0.254	2.386	0.323	1.485	1.717	1.675
2.04	1.262	1.354	1.689	0.898	1.121	0.16	0.185	0.398	1.255
1.407	1.819	0.911	0.475	0.968	0.644	2.039	2.175	0.902	1.959
0.918	1.564	0.787	0.891	1.588	1.542	3.624	0.784	2.3	0.393
0.971	1.157	1.437	0.598	2.97	0.748	1.771	1.108	1.777	0.373
0.932	0.816	1.129	1.478	1.124	0.881	1.545	1.035	0.39	1.087
3.241	1.412	1.887	1.014	2.731	1.088	1.81	1.267	1.285	4.003
2.148	1.235	0.362	2.789	1.729	1.482	0.794	1.845	0.53	0.479
0.778	2.147	1.226	0.433	1.931	1.448	1.829	2.088	0.749	0.926
0.622	1.86	1.701	1.304	1.342	1.381	1.343	1.011	3.001	2.421
0.81	1.662	1.821	1.213	0.769	1.391	1.742	0.704	0.765	0.09
0.358	1.34	0.329	0.774	1.023	1.849	1.546	0.95	0.921	1.613

p m shankar

data (Pham)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right)^{\frac{b}{a}} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 1.4811 b = 1.4811 Weibull fit : MSE = 0.00047234

$$f_X(x) = 2\left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

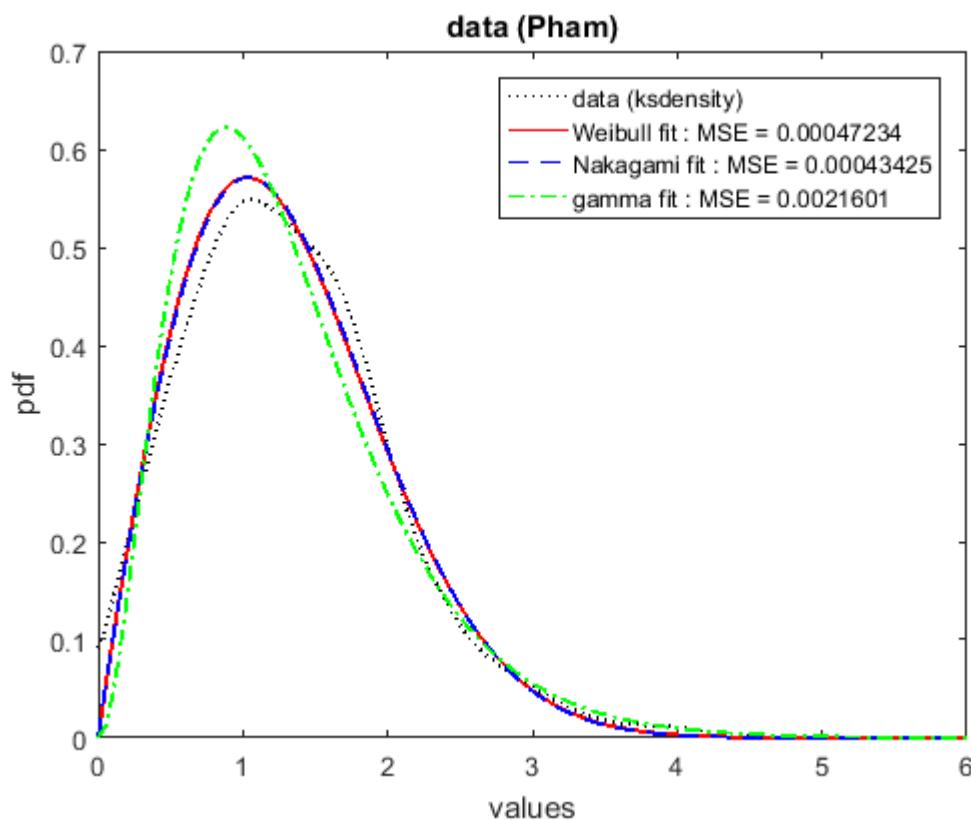
m = 0.97581 Ω = 2.2137 Nakagami fit : MSE = 0.00043425

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 3.0641 b = 0.42867 gamma fit : MSE = 0.0021601

best fit: Nakagami

p m shankar



data (Pizzo)

2.831	1.324	2.428	1.899	10.396	4.288	0.606	2.61	1.004	2.63
0.214	0.607	2.391	4.052	1.083	3.666	1.999	4.45	7.748	1.649
4.357	2.353	7.95	5.255	3.242	2.862	4.753	2.013	2.741	5.066
1.021	4.427	3.504	5.54	6.858	0.756	6.289	2.478	0.346	2.958
1.454	3.082	2.056	3.749	1.468	0.76	0.326	2.119	0.917	2.582
0.679	2.586	1.237	1.829	5.681	1.544	6.505	1.063	2.686	3.304
2.988	1.357	1.826	1.482	4.331	3.49	6.149	1.661	4.296	4.388
1.408	1.918	7.48	0.792	7.603	2.487	1.216	3.316	2.877	5.077
1.688	0.787	0.918	0.514	1.398	5.237	5.495	2.182	0.789	1.497
1.478	1.76	0.682	1.115	3.121	1.778	1.697	0.954	4.606	2.29
1.448	4.164	4.219	3.67	1.323	4.85	1.03	3.104	3.037	3.143
1.645	0.704	1.433	5.878	0.624	2.392	2.657	2.464	1.141	2.099
5.573	0.319	2.11	0.315	1.045	0.685	0.943	4.72	3.433	2.586
1.684	0.509	1.906	6.107	0.788	1.984	3.632	9.066	0.362	3.769
1.945	1.551	4.553	3.319	2.846	0.74	1.876	2.563	2.274	7.531
0.173	4.319	1.661	2.025	6.458	3.13	3.07	2.061	3.251	1.097
3.021	0.55	0.935	1.869	1.671	1.797	4.355	12.24	2.824	1.311
1.2	3.164	1.232	1.03	0.131	0.754	3.813	3.242	0.294	4.011
2.248	1.626	2.451	1.494	10.945	7.946	3.803	2.099	2.253	0.652
0.545	7.624	0.792	6.247	0.746	1.948	2.354	10.395	3.057	1.732

p m shankar

data (Pizzo)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right) \frac{x^{b-1}}{a} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 3.0956 b = 3.0956 Weibull fit : MSE = 0.00012999

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

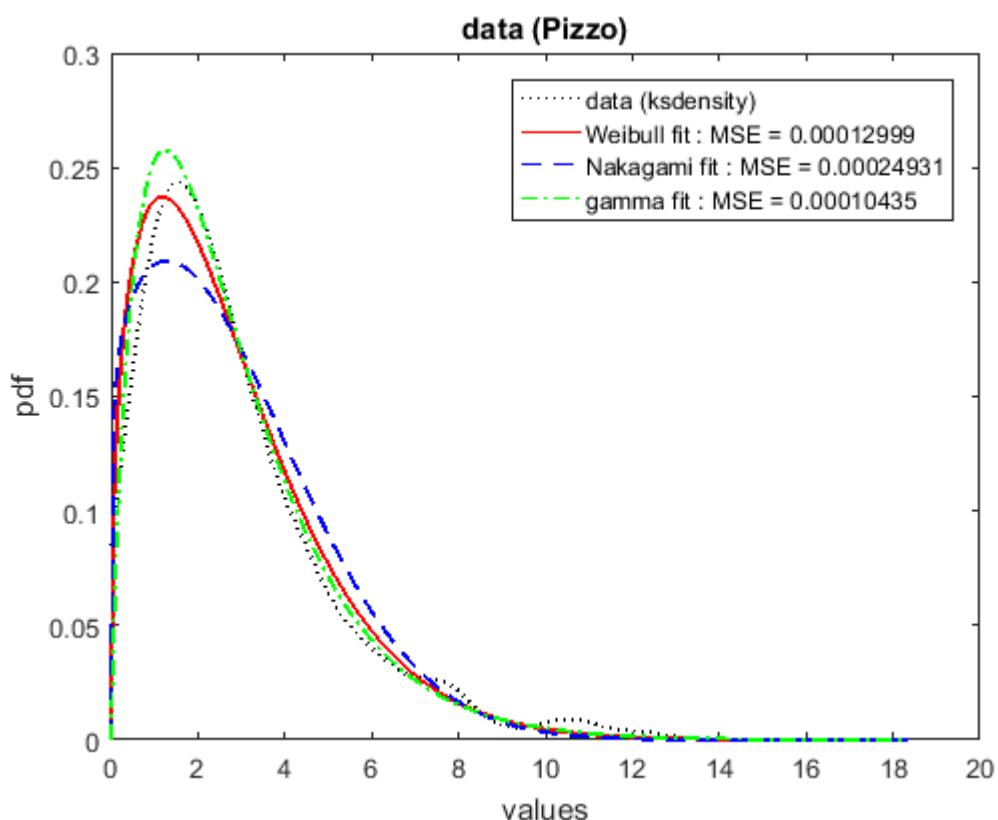
m = 0.57439 Ω = 12.7593 Nakagami fit : MSE = 0.00024931

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{a-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 1.7901 b = 1.5748 gamma fit : MSE = 0.00010435

best fit: gamma

p m shankar



data (Purcell)

1.133	1.143	0.701	1.708	1.159	1.378	1.569	1.333	1.035	1.303
1.198	1.52	1.714	1.335	0.957	1.513	0.889	2.948	2.291	1.04
0.686	0.305	1.167	1.754	0.825	1.12	1.782	0.398	1.227	1.209
0.496	0.68	1.611	2.246	1.413	1.346	1.388	0.781	1.195	1.644
1.354	0.857	2	1.419	1.105	0.467	1.553	1.836	0.856	0.951
1.44	2.037	1.013	0.853	0.609	1.153	1.155	1.527	0.47	1.473
0.452	1.736	0.635	2.241	1.44	0.959	2.32	0.449	0.893	1.984
0.907	2.184	0.766	1.44	0.985	0.918	1.036	1.102	1.548	1.928
1.452	1.396	0.802	0.736	0.88	1.652	1.614	1.16	1.002	0.583
1.597	0.991	1.396	1.188	0.865	0.756	0.733	1.937	0.173	1.559
0.679	0.667	1.367	1.168	1.456	1.918	1.14	0.399	1.528	1.112
0.358	0.636	1.508	1.972	0.665	1.314	0.399	0.945	0.547	1.79
1.733	1.463	2.777	0.731	0.398	1.455	1.259	1.616	1.696	0.912
1.927	0.531	1.229	1.178	1.726	1.447	1.652	1.056	1.295	2.271
1.391	0.739	1.086	0.773	1.131	1.397	0.292	0.851	1.352	1.839
1.602	1.648	1.064	1.514	2.317	1.195	1.199	0.803	1.045	0.393
0.759	0.295	2.661	1.053	2.197	1.188	1.02	0.918	0.649	1.712
1.422	0.981	2.807	2.116	0.778	1.095	2.493	2.247	0.815	2.28
0.936	2.037	1.102	2.218	0.392	1.001	1.553	1.133	0.428	1.518
0.966	1.026	0.787	0.443	0.906	2.298	0.496	1.364	1.292	1.088

[p m shankar](#)

data (Purcell)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right)^{\frac{b}{a}} x^{b-1} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 1.4096 b = 1.4096 Weibull fit : MSE = 0.00045345

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

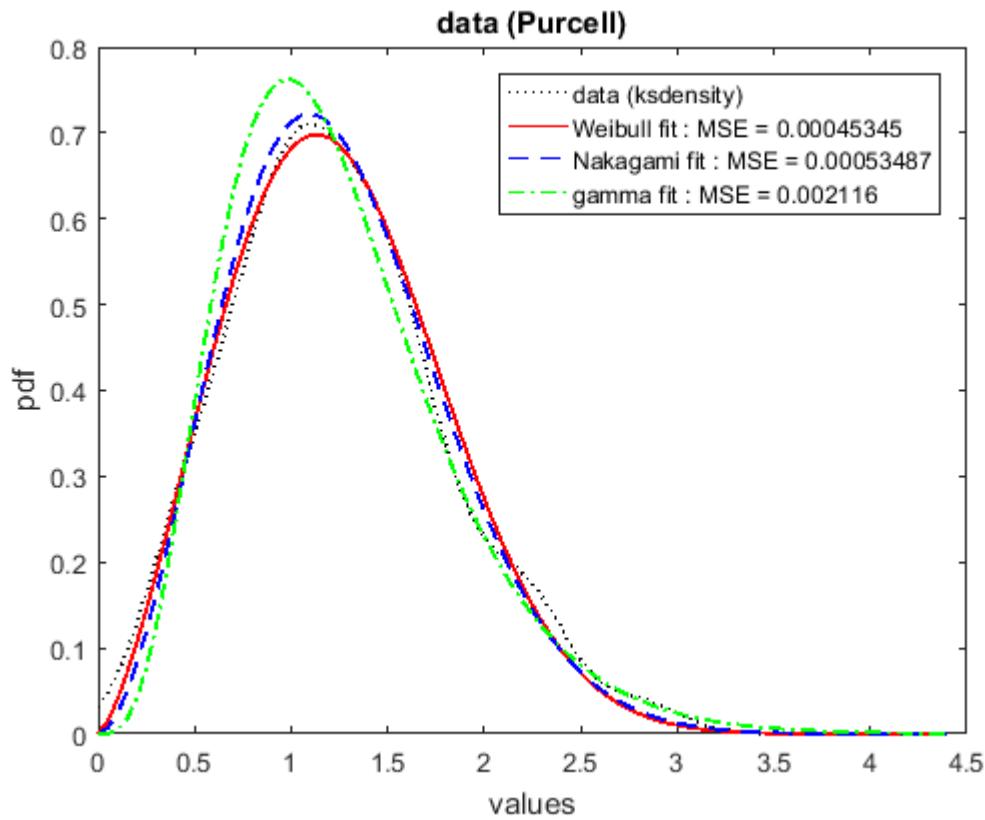
m = 1.3977 Ω = 1.8614 Nakagami fit : MSE = 0.00053487

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 4.6856 b = 0.26643 gamma fit : MSE = 0.002116

best fit: Weibull

[p m shankar](#)



data (Reed)

3.603	1.541	2.684	2.696	0.394	2.07	0.907	0.903	2.761	0.082
8.464	9.893	0.428	1.771	2.368	4.756	2.522	3.288	3.481	0.438
2.382	3.986	9.348	10.892	1.84	3.179	6.6	1.558	3.859	1.414
1.491	0.274	0.305	8.424	8.555	3.238	1.525	2.542	4.152	0.696
5.312	0.866	0.895	1.138	5.29	9.301	3.828	1.703	0.325	1.849
2.265	1.123	1.979	4.129	1.303	0.646	3.865	0.619	5.025	2.937
6.004	2.536	4.126	4.383	2.129	2.021	8.905	3.065	1.24	1.377
3.778	4.248	1.084	0.508	2.551	7.61	6.28	0.175	4.968	10.385
0.388	1.727	0.02	1.339	2.582	0.8	1.361	1.623	4.459	3.078
2.178	1.771	6.009	7.528	4.424	2.764	4.862	2.815	3.617	5.377
3.935	0.534	2.536	4.951	0.424	3.602	0.504	0.461	0.645	3.192
4.166	0.815	0.447	6.584	4.06	1.921	2.698	0.463	3.336	3.516
4.181	2.45	1.617	6.18	3.262	0.05	0.345	0.979	2.746	2.001
1.114	0.322	7.22	1.198	3.739	4.43	4.195	0.256	3.216	0.942
1.602	2.138	5.551	0.056	5.883	2.898	16.682	0.086	4.078	1.387
4.712	4.712	6.331	2.026	3.713	3.03	4.573	2.167	5.152	4.126
3.281	3.991	0.843	4.919	5.177	5.771	1.721	3.127	2.922	2.738
4.421	6.424	0.401	4.161	5.427	0.792	5.923	3.51	0.681	5.385
2.376	1.074	7.69	2.969	4.813	2.238	6.744	0.999	1.309	0.123
1.486	0.752	1.683	3.806	3.065	6.122	2.28	1.317	4.145	7.5

p m shankar

data (Reed)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right) \frac{x^{b-1}}{a} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 3.4044 b = 3.4044 Weibull fit : MSE = 0.00024957

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

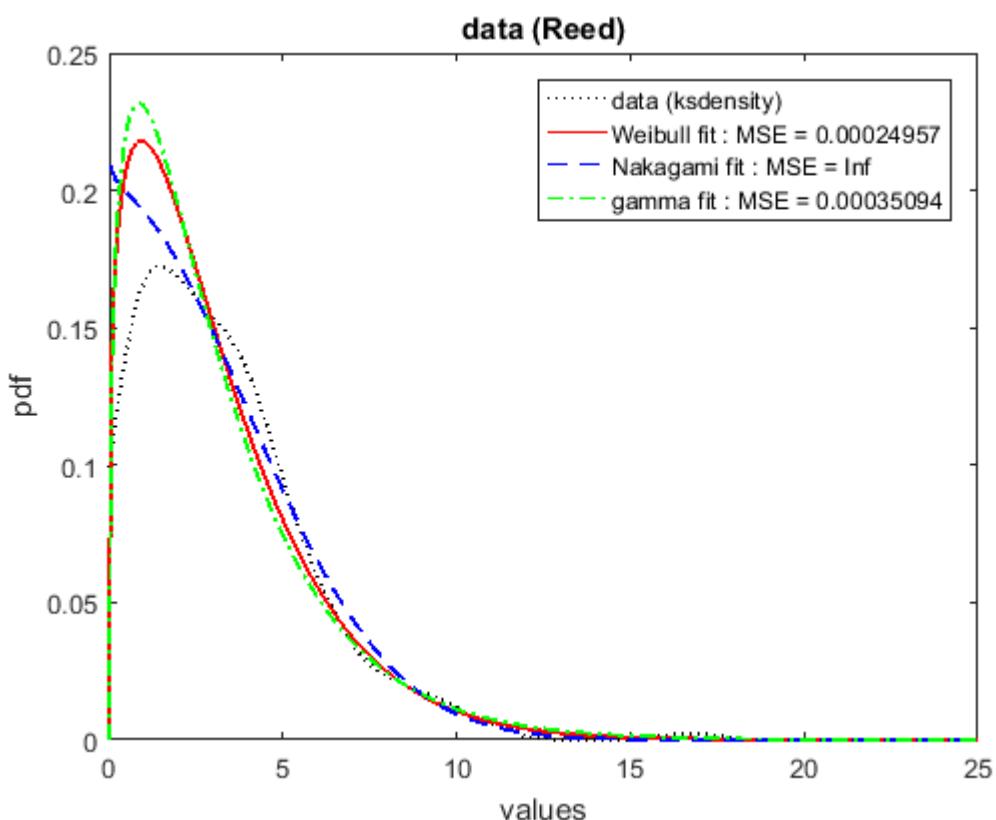
m = 0.4908 Ω = 16.3767 Nakagami fit : MSE = Inf

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 1.3682 b = 2.3243 gamma fit : MSE = 0.00035094

best fit: Weibull

p m shankar



data (Rouf)

3.72	1.073	0.261	3.536	2.158	-2.442	-0.957	0.318	3.113	6.297
4.5	1.419	-0.881	2.105	1.021	-0.144	-2.193	0.982	3.534	2.415
1.235	1.044	-3.371	-1.022	0.364	1.635	0.005	4.214	-0.367	2.81
4.016	-1.262	2.964	1.98	-1.629	0.669	0.987	-0.511	4.445	0.273
3.687	2.03	2.194	3.067	1.559	3.184	2.868	3.588	3.47	1.463
3.45	3.624	2.956	1.114	2.714	2.687	1.736	0.981	0.007	-0.576
3.901	1.617	2.642	-1.114	3.421	2.098	0.795	0.262	2.131	2.592
1.285	0.371	-2.055	-0.031	1.249	2.741	1.969	0.798	-0.329	0.161
2.739	2.825	1.707	3.065	0.535	5.609	-0.776	5.772	3.961	4.23
3.682	3.918	5.37	1.363	4.941	0.996	2.102	0.268	1.447	3.458
0.616	2.41	3.361	2.266	4.923	6.827	3.573	4.528	3.319	1.367
-1.062	2.487	1.198	2.123	6.284	5.216	1.459	1.671	1.619	0.784
2.818	1.943	0.564	3.004	-0.374	4.029	3.871	0.495	2.036	-1.249
1.902	0.351	0.769	3.414	-1.068	-2.438	0.835	2.912	0.512	3.201
2.4	1.765	2.016	2.383	1.825	0.37	3.54	1.739	0.582	3.216
1.474	3.757	1.871	2.606	2.278	-1.134	-1.192	1.329	1.124	1.301
-0.193	1.388	-0.289	2.234	2.87	1.904	1.59	2.464	6.351	5.708
2.465	2.913	0.591	-0.789	0.516	-0.617	2.64	0.548	3.241	2.688
3.366	1.379	0.934	3.355	1.102	0.62	-0.596	5.734	2.624	2.704
2.083	2.68	3.693	3.595	0.883	4.456	-1.453	1.698	2.599	1.546

p m shankar

data (Rouf)

Data set contains -ve values

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

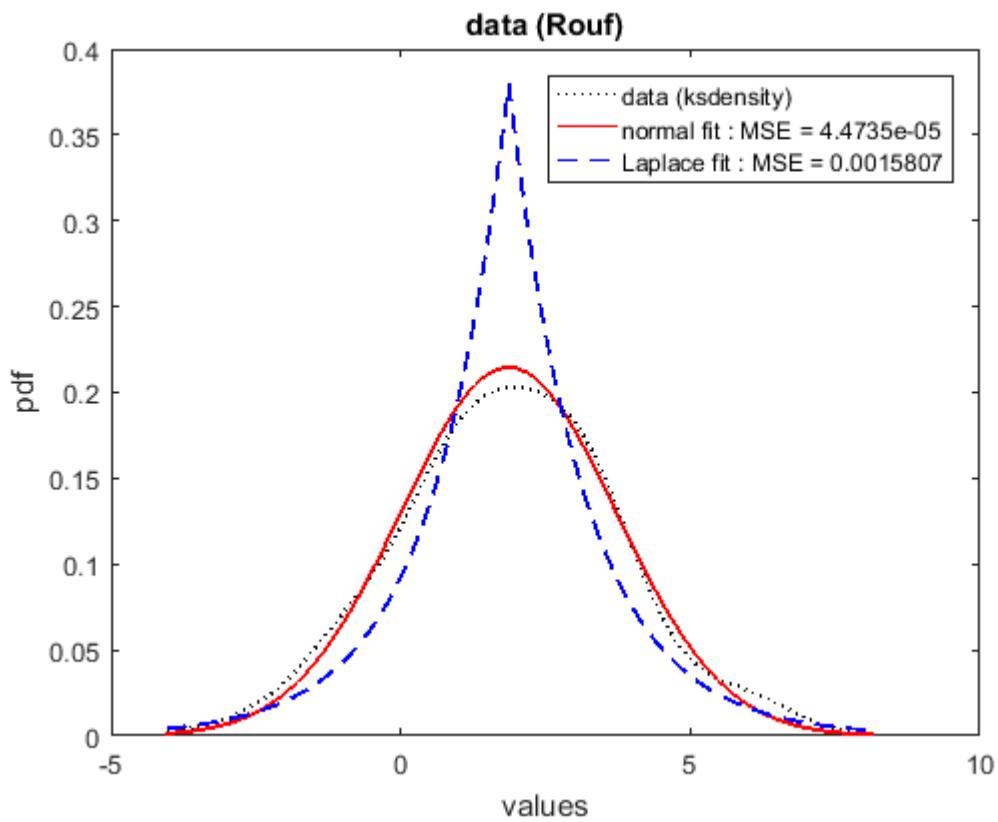
$\mu = 1.864$ $\sigma = 1.8591$ normal fit : MSE = 4.4735e-05

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

$a = 1.864$ $b = 1.3146$ Laplace fit : MSE = 0.0015807

best fit: normal

p m shankar



data (Saleh)

2.945	0.917	1.571	0.767	1.882	2.157	1.443	1.747	0.551	0.281
0.638	1.954	0.758	1.387	0.86	1.244	0.928	0.821	0.402	1.499
0.718	0.645	0.546	1.01	1.34	0.762	1.275	0.768	1.655	0.743
1.806	2.196	0.579	0.944	0.968	0.265	1.021	0.485	1.326	0.898
1.287	2.074	1.287	0.594	0.866	0.365	2.036	2.59	1.432	1.165
0.56	1.533	1.12	1.441	1.649	1.409	1.313	0.988	0.843	1.549
0.418	0.341	1.628	0.617	0.69	1.034	1.966	1.458	1.574	0.399
0.768	1.27	1.389	1.734	0.917	1.765	0.806	2.137	0.222	0.703
1.532	0.944	1.621	1.331	0.475	0.959	1.327	1.65	1.608	1.291
0.577	1.559	1.091	1.774	2.286	1.035	0.503	1.219	1.467	2.017
1.509	1.604	0.376	0.4	1.164	0.596	0.981	1.074	1.319	1.666
0.912	1.113	2.24	1.802	0.936	1.688	1.239	1.6	1.274	1.138
1.006	0.797	1.364	0.537	0.774	1.393	1.297	1.9	2.132	1.388
1.553	0.756	2.794	1.21	1.717	2.322	1.576	1.969	1.583	1.54
0.91	0.896	0.935	0.708	1.088	0.593	0.874	2.216	1.153	1.578
1.147	0.391	0.873	0.8	1.654	0.514	1.037	1.996	0.812	0.612
1.024	1.575	1.584	0.97	2.084	1.616	0.538	1.778	0.923	1.243
0.848	1.377	0.564	0.309	1.282	1.359	1.403	0.475	0.765	1.316
2.429	1.761	1.365	3.14	0.768	0.883	0.61	1.492	0.584	2.494
1.589	2.193	1.364	2.195	0.382	1.141	1.343	1.381	0.488	0.474

p m shankar

data (Saleh)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right) \frac{x^{b-1}}{a} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 1.3856 b = 1.3856 Weibull fit : MSE = 0.00075375

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

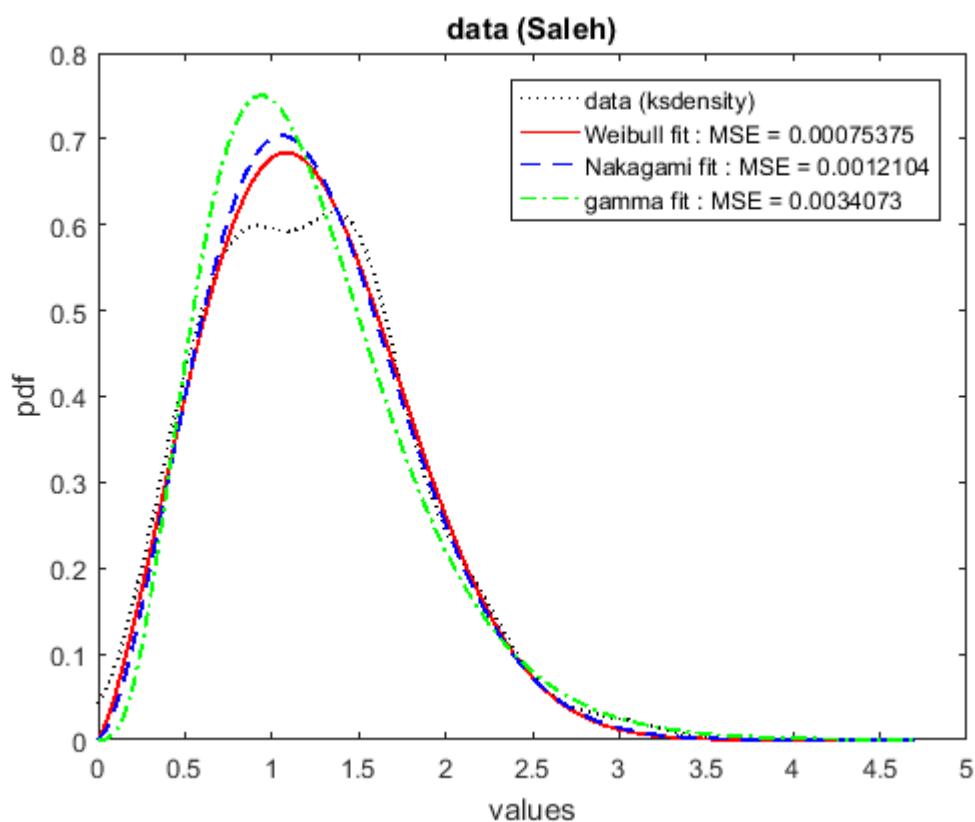
m = 1.2875 Ω = 1.8229 Nakagami fit : MSE = 0.0012104

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 4.2925 b = 0.28543 gamma fit : MSE = 0.0034073

best fit: Weibull

p m shankar



data (Sanford)

8.668	0.874	8.077	2.084	1.629	1.926	10.649	0.853	1.415	1.931
0.364	11.007	0.479	0.15	3.506	0.525	3.816	6.326	4.742	3.932
3.909	3.237	14.982	3.814	5.847	0.727	2.473	3.984	0.724	4.676
4.055	0.197	3.423	2.078	3.085	5.116	2.099	3.246	0.804	5.085
4.423	5.304	7.207	5.586	6.835	3.606	3.382	7.692	1.655	5.594
0.157	1.406	1.033	1.19	0.224	1.807	1.722	2.778	0.574	0.84
2.023	1.334	0.242	0.124	0.757	3.664	2.516	2.778	3.238	12.221
3.164	1.986	2.362	3.574	1.472	3.316	5.331	3.066	0.102	2.373
10.423	2.873	1.414	0.742	7.222	0.663	2.592	2.328	3.929	0.983
2.644	0.151	5.304	2.086	2.599	2.939	5.099	2.032	0.558	0.603
7.66	3.273	2.366	1.065	0.302	2.403	3.643	1.656	7.028	3.995
14.781	2.204	2.854	7.474	2.21	1.001	2.855	0.333	2.554	0.004
0.721	3.032	2.151	2.685	3.434	1.165	2.953	4.632	13.97	0.483
1.82	0.921	7.82	3.163	1.03	7.92	1.912	1.463	5.69	1.466
1.674	6.577	5.664	1.698	1.412	5.109	8.113	1.807	4.698	3.051
6.152	0.724	0.767	4.534	0.469	1.056	3.694	3.315	11.589	3.145
4.529	1.131	1.75	1.63	6.199	3.013	3.622	2.293	4.582	1.237
3.45	0.094	2.948	0.286	9.827	3.657	2.989	4.745	3.163	1.68
4.805	2.774	3.188	1.261	4.354	0.868	0.454	5.065	3.278	2.934
6.309	1.183	0.836	10.456	0.15	4.354	0.849	1.094	0.803	0.04

[p m shankar](#)

data (Sanford)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right)^{\frac{b}{a}} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 3.4346 b = 3.4346 Weibull fit : MSE = 0.00034834

$$f_X(x) = 2\left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

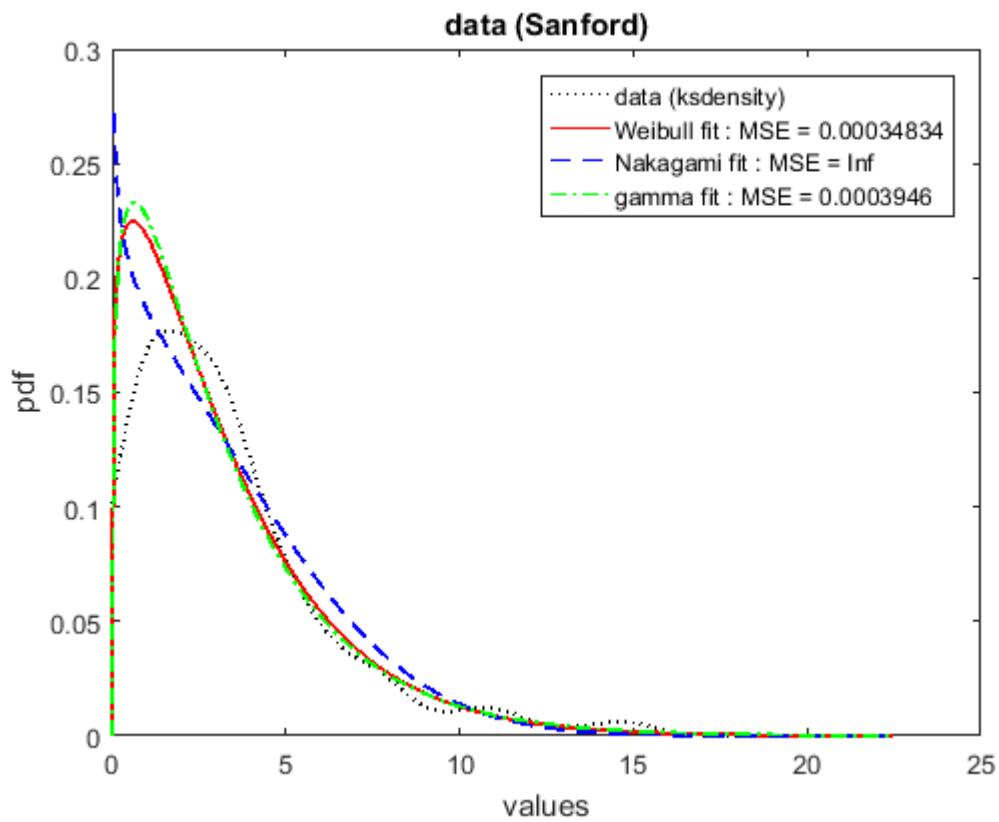
m = 0.44023 Ω = 18.785 Nakagami fit : MSE = Inf

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 1.2424 b = 2.6302 gamma fit : MSE = 0.0003946

best fit: Weibull

[p m shankar](#)



data (Shahriar)

2.47	2.46	0.807	2.386	1.358	1.421	1.711	2.956	1.284	1.32
3.353	2.164	1.928	3.222	0.335	0.883	0.908	0.804	2.981	0.497
2.72	3.064	2.019	2.607	0.558	6.899	3.283	0.333	1.747	1.875
2.861	2.666	3.279	2.262	2.167	3.778	1.654	2.129	2.576	1.762
2.716	3.045	1.761	3.518	0.28	2.492	0.877	3.476	1.425	2.509
1.833	4.891	1.409	0.352	0.997	0.747	2.941	2.046	3.66	2.584
1.967	5.104	0.91	2.266	2.709	0.08	1.827	0.201	3.27	1.787
1.212	1.234	2.162	1.168	0.556	3.325	2.121	1.302	3.202	2.005
2.484	4.989	1.334	1.122	3.687	3.313	1.047	0.465	2.525	2.127
1.335	0.8	3.268	3.024	3.66	3.769	4.303	0.674	2.379	1.624
1.633	3.188	4.904	1.666	6.741	1.769	1.373	3.002	3.05	4.516
1.927	1.76	3.576	2.911	2.731	2.355	1.92	3.814	1.585	3.222
1.004	2.013	0.971	3.611	2.496	2.919	2.298	2.361	0.523	0.68
2.312	1.473	1.192	2.37	3.638	3.163	1.247	3.563	2.291	1.836
1.861	2.55	3.234	4.102	1.457	3.234	2.404	1.327	1.168	5.107
1.284	1.313	3.321	3.716	0.521	0.879	2.536	2.568	1.187	2.767
1.964	2.065	1.566	1.993	2.66	1.695	1.613	2.235	0.173	4.398
0.315	1.291	2.393	3.116	1.217	1.721	2.412	3.175	3.115	1.198
3.749	2.518	0.645	4.777	1.578	1.617	3.282	1.383	2.636	1.459
2.739	0.698	2.153	0.192	3.717	3.289	4.267	3.155	1.302	1.973

p m shankar

data (Shahriar)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right) \frac{x^{b-1}}{a} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

$a = 2.5243$ $b = 2.5243$ Weibull fit : MSE = 0.00032453

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

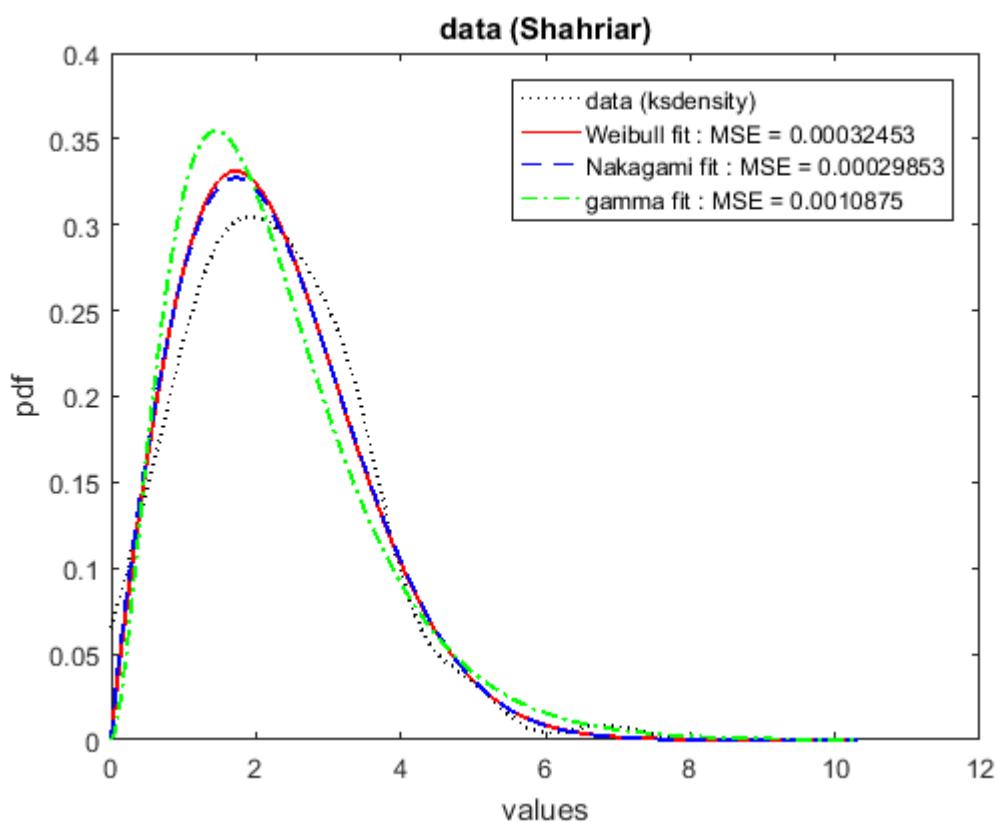
$m = 0.92631$ $\Omega = 6.4841$ Nakagami fit : MSE = 0.00029853

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

$a = 2.8096$ $b = 0.799$ gamma fit : MSE = 0.0010875

best fit: Nakagami

p m shankar



data (Shetzline)

0.665	1.78	1.834	2.677	1.558	0.882	1.464	2.15	1.447	0.555
0.932	1.15	1.937	2.485	0.721	2.312	1.999	1.994	1.461	1.09
1.618	2.551	2.263	0.897	2.552	1.573	0.984	3.438	1.368	3.983
1.589	3.212	0.167	2.827	2.054	0.513	1.464	2.401	2.212	2.061
1.843	1.542	2.654	1.936	2.632	1.803	1.213	2.718	2.011	2.19
2.565	1.199	1.894	2.643	1.593	1.358	2.008	2.309	0.938	1.194
1.812	2.279	2.375	1.428	1.4	1.06	2.91	2.375	1.395	0.076
1.275	2.321	1.931	2.096	1	2.209	3.689	1.286	3.514	2.117
2.849	2.012	2.104	0.812	0.796	1.546	0.312	0.472	0.624	2.31
1.856	0.421	2.527	1.278	0.996	2.707	0.982	2.844	2.833	0.542
0.781	2.296	0.821	2.707	1.165	0.587	1.629	1.09	1.119	2.91
2.465	2.986	3.101	1.845	1.133	1.77	2.595	0.835	2.607	1.376
0.789	0.838	0.929	2.247	0.381	0.935	0.761	1.774	1.014	1.922
2.87	1.17	3.724	1.428	1.465	1.212	2.625	0.729	2.192	0.267
1.293	2.146	1.995	2.704	0.513	0.775	2.84	1.473	1.232	1.728
1.21	1.072	1.838	0.765	1.603	3.526	0.797	1.719	1.779	0.585
4.903	1.771	1.498	1.797	2.272	2.276	2.976	1.032	1.751	2.527
1.94	0.716	1.541	1.866	2.93	2.848	2.07	3.124	1.97	1.479
0.603	1.854	2.823	0.569	2.231	1.298	2.016	2.968	4.091	2.082
2.059	1.315	1.925	2.984	2.088	2.832	2.56	1.555	1.225	2.033

p m shankar

data (Shetzline)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right)^{\frac{b}{a}} x^{b-1} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 2.0273 b = 2.0273 Weibull fit : MSE = 0.00048846

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

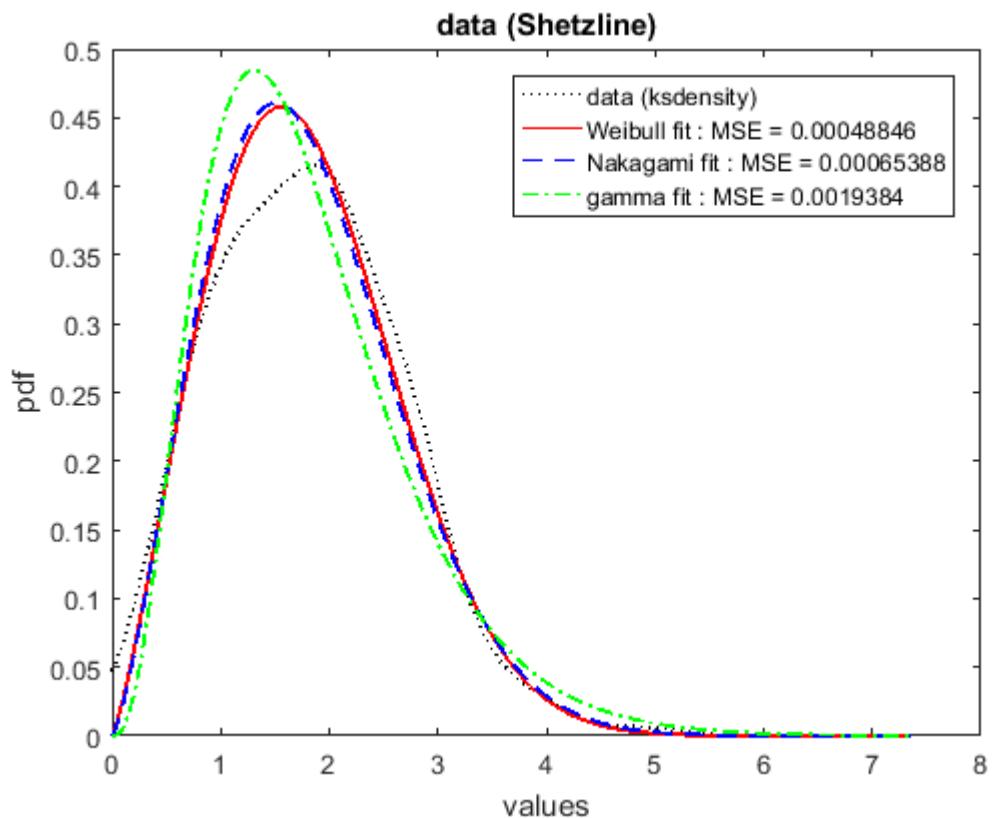
m = 1.1762 Ω = 3.9456 Nakagami fit : MSE = 0.00065388

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 3.7018 b = 0.4856 gamma fit : MSE = 0.0019384

best fit: Weibull

p m shankar



data (Singer)

1.037	15.601	4.677	3.071	3.951	1.121	5.664	2.362	6.988	0.504
1.209	2.127	6.186	1.955	11.816	2.973	5.2	1.094	3.617	0.708
2.599	2.088	1.397	0.206	1.143	1.371	0.535	1.747	2.515	2.21
0.18	0.437	0.142	0.682	4.347	4.684	2.016	0.698	4.722	4.996
2.838	5.277	0.491	12.263	0.993	2.097	4.214	7.306	1.021	3.635
9.317	1.941	1.614	1.234	0.36	1.009	2.943	4.264	1.289	5.836
6.447	2.124	0.842	0.274	1.765	1.011	2.612	3.693	1.013	11.164
3.682	2.327	2.781	1.757	1.603	2.953	2.378	2.612	0.448	2.87
5.784	4.621	0.144	6.02	2.043	2.925	0.633	8.364	3.667	8.284
0.45	0.93	1.185	2.291	0.259	2.77	6.235	1.161	1.281	2.096
1.371	3.267	3.622	1.958	7.97	2.07	2.094	3.241	8.678	2.856
1.902	0.409	1.531	1.778	5.459	2.992	3.514	2.924	1.606	6.644
10.46	3.184	8.69	0.32	1.123	0.483	2.025	1.987	2.812	7.727
1.168	0.625	3.241	1.472	3.921	1.324	1.488	1.621	2.588	0.704
0.16	1.344	1.423	0.747	6.746	3.683	0.859	1.394	0.675	1.252
1.119	1.638	0.572	4.028	2.193	2.874	1.077	0.761	4.864	2.188
2.124	3.388	0.599	0.311	2.014	2.128	7.923	2.083	2.337	1.118
0.495	1.334	3.57	0.811	0.406	4.172	1.916	1.919	5.527	1.732
1.543	1.246	8.751	1.175	0.65	1.337	2.517	1.22	1.694	8.985
2.04	4.097	3.694	8.246	0.761	2.467	3.389	1.257	2.315	3.593

p m shankar

data (Singer)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right) \frac{x^{b-1}}{a} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 3.071 b = 3.071 Weibull fit : MSE = 0.00025937

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

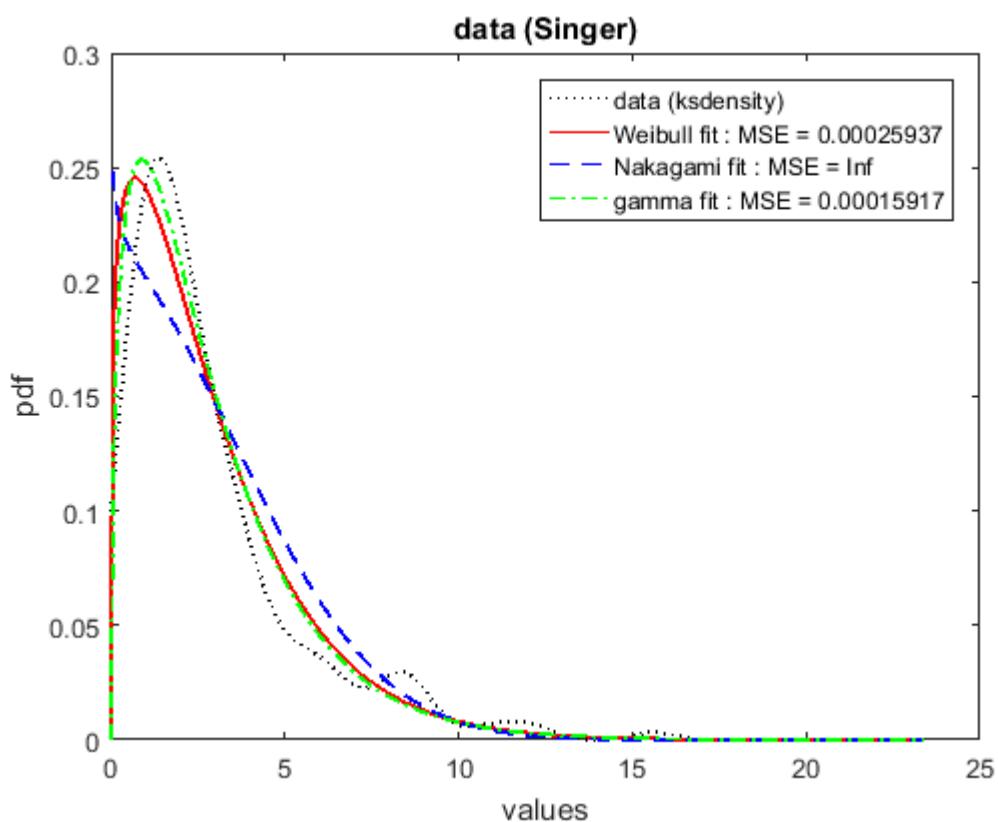
m = 0.47037 Ω = 15.0135 Nakagami fit : MSE = Inf

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{a-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 1.4467 b = 1.9884 gamma fit : MSE = 0.00015917

best fit: gamma

p m shankar



data (Singh)

2.871	1.785	3.149	0.758	3.3	1.794	1.861	2.744	2.185	8.729
0.306	1.703	3.653	2.958	3.249	0.918	3.101	4.473	1.758	1.907
1.114	1.385	1.462	0.721	2.236	1.382	1.128	2.869	8.544	5.071
0.901	3.09	1.865	2.999	3.125	1.191	3.385	2.155	9.16	4.648
2.951	7.909	4.27	3.256	3.359	2.543	8.553	2.283	1.156	1.11
0.144	11.858	0.53	4.522	2.185	1.053	2.267	2.503	3.287	0.198
0.842	2.804	1.847	2.623	2.056	3.702	4.038	2.747	2.618	6.165
3.263	2.638	0.314	1.196	3.893	2.142	2.802	1.539	0.021	3.668
0.208	0.831	0.08	2.769	2.828	0.474	0.271	1.677	0.688	0.931
0.246	2.254	2.174	3.678	0.438	1.946	2.132	3.595	3.893	1.548
0.621	5.149	1.932	9.57	1.901	4.34	4.113	0.639	4.026	3.008
1.207	1.454	2.85	2.349	3.071	2.709	1.869	4.68	1.783	5.613
1.021	0.542	7.827	6.279	1.577	5.887	4.629	0.895	2.961	2.447
8.446	1.746	2.354	4.546	2.842	6.425	3.008	3.26	6.502	2.374
1.785	1.52	3.093	4.913	2.359	7.191	0.884	4.117	16.92	3.079
3.148	1.393	3.045	1.134	1.023	7.059	1.481	2.424	6.973	1.556
0.611	6.129	2.105	2.489	0.177	2.007	1.486	1.24	1.168	2.767
1.171	2.836	1.381	6.13	14.017	3.46	0.331	3.201	0.864	2.841
8.073	1.456	0.604	0.669	3.298	2.209	0.453	1.573	3.488	3.77
6.661	2.58	1.402	1.014	5.455	1.902	5.833	1.131	1.457	1.93

p m shankar

data (Singh)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right)^{\frac{b}{a}} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 3.1771 b = 3.1771 Weibull fit : MSE = 0.00032406

$$f_X(x) = 2\left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

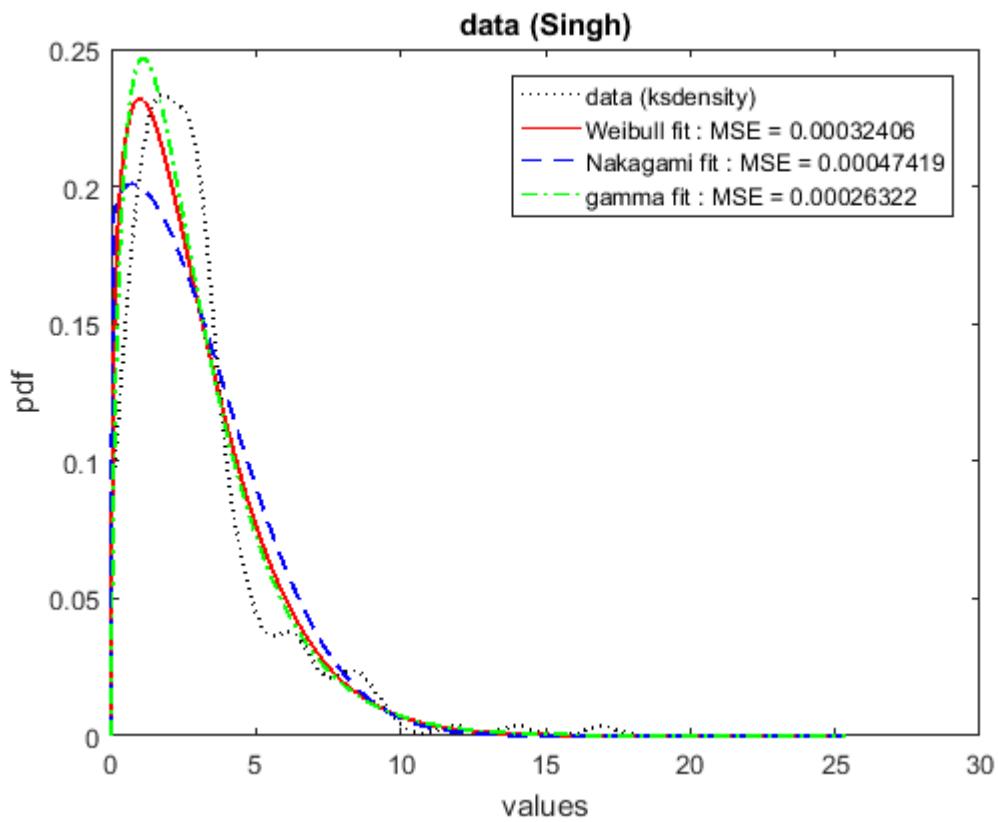
m = 0.51892 Ω = 14.5886 Nakagami fit : MSE = 0.00047419

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 1.6019 b = 1.8293 gamma fit : MSE = 0.00026322

best fit: gamma

p m shankar



data (Sinha)

1.27	0.864	3.385	0.805	2.464	0.585	0.612	1.902	0.175	1.526
2.59	1.93	2.349	1.274	0.342	2.409	1.772	0.289	2.053	2.08
1.222	2.009	2.57	1.422	1.529	1.116	1.096	1.818	1.221	0.586
1.978	2.633	0.716	2.92	2.829	1.479	2.361	0.757	1.323	1.907
1.679	2.907	3.41	1.679	3.285	1.347	1.337	2.185	0.864	1.735
1.742	3.052	0.798	2.057	0.032	1.285	0.877	1.073	1.104	1.39
1.234	1.258	0.931	1.017	1.918	1.63	1.69	1.433	2.505	3.856
1.988	2.881	3.493	4.432	1.28	1.384	0.686	1.996	1.426	0.434
0.745	1.28	0.836	1.274	2.389	2.344	0.645	2.406	0.965	2.74
0.4	3.46	2.871	2.095	1.418	2.28	1.083	1.779	1.841	0.852
1.526	0.871	1.023	2.283	2.113	2.775	1.123	2.257	0.941	2.02
0.111	2.211	1.3	1.509	1.158	1.326	0.851	1.396	2.575	1.596
0.687	2.108	1.483	2.556	0.493	2.735	4.654	1.034	1.418	2.87
1.693	2.239	1.871	1.397	1.589	1.577	0.95	1.99	2.202	2.024
2.497	4.111	1.682	3.564	1.853	3.408	3.656	2.548	0.708	1.199
1.573	2.064	1.177	2.792	1.106	1.6	0.986	1.65	2.044	2.66
1.837	2.231	1.746	3.095	3.25	2.192	1.394	0.764	1.812	1.269
2.805	2.272	1.966	1.919	3.385	2.373	3.502	2.183	1.616	0.556
1.496	0.96	1.824	1.186	1.424	1.509	2.618	1.035	2.917	1.152
1.157	0.822	2.774	0.578	0.713	2.655	1.25	1.778	2.33	1.279

p m shankar

data (Sinha)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right) \frac{x^{b-1}}{a} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 1.9964 b = 1.9964 Weibull fit : MSE = 0.00011161

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

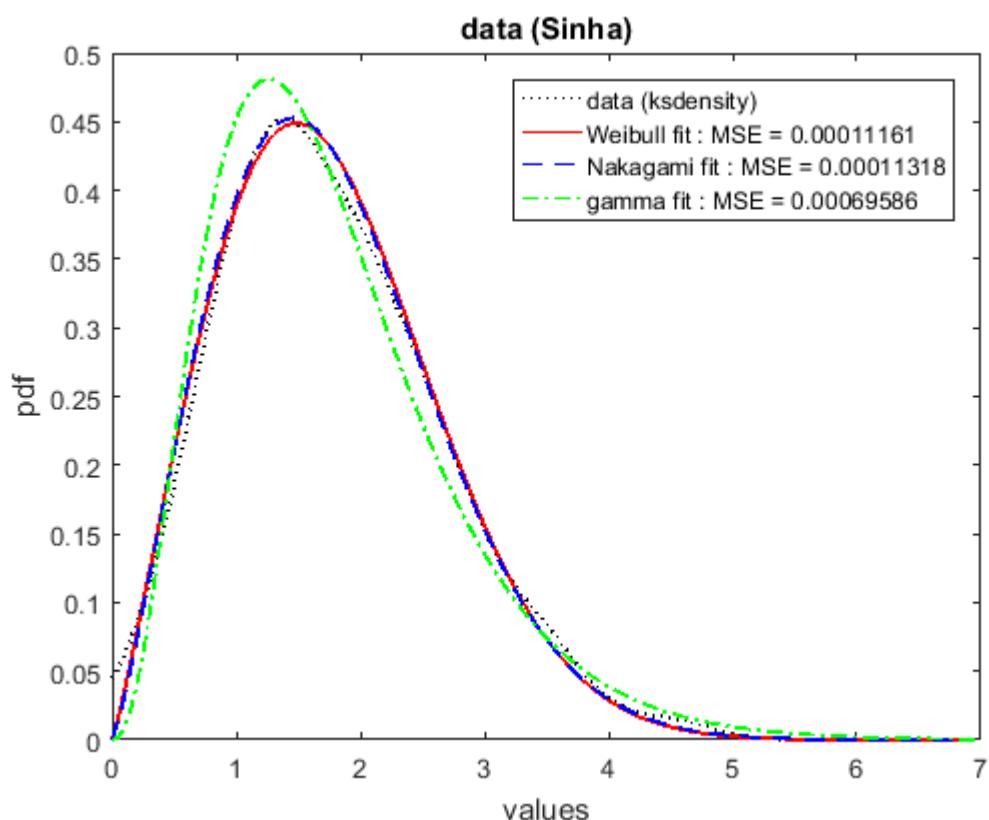
m = 1.1063 Ω = 3.8865 Nakagami fit : MSE = 0.00011318

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 3.4755 b = 0.50959 gamma fit : MSE = 0.00069586

best fit: Weibull

p m shankar



data (Sohan)

2.245	0.643	3.264	2.732	3.543	3.316	1.907	2.469	4.764	2.894
4.598	1.89	0.688	1.397	4.057	0.566	2.737	2.377	3.685	2.21
1.409	0.895	1.451	2.836	2.865	2.451	2.201	1.531	3.239	3.681
1.724	0.214	1.071	1.742	4.484	2.241	0.718	2.377	0.696	2.533
3.6	0.588	2.092	2.763	1.359	2.527	0.869	1.92	1.934	1.229
3.097	2.147	0.484	2.027	0.596	3.477	0.896	1.734	4.656	2.724
2.712	3.605	1.032	1.375	3.07	1.125	0.434	2.337	0.907	1.4
4.661	4.143	3.685	1.359	1.785	3.265	1.334	1.026	0.565	1.655
3.164	2.437	0.642	2.382	2.277	1.069	5.102	1.929	2.133	1.046
4.105	1.909	1.528	3.379	3.308	2.373	0.219	1.137	2.288	2.02
7.412	0.71	2.716	4.873	3.197	2.324	2.216	2.686	1.729	2.454
1.681	0.652	0.968	3.746	3.226	1.982	2.02	0.973	3.03	1.731
1.172	1.097	0.575	0.663	0.674	2.296	3.889	3.088	1.491	1.773
2.412	3.255	1.547	1.741	2.11	6.136	1.23	3.674	0.346	1.976
2.89	2.416	1.894	1.69	1.193	1.598	1.44	3.917	3.364	1.402
2.806	0.755	3.444	5.594	3.249	2.915	1.947	3.416	1.697	2.472
1.452	1.98	0.295	3.1	3.041	1.81	1.359	1.174	1.665	3.628
3.201	2.229	1.131	3.963	1.009	2.534	1.531	0.475	1.68	2.503
1.845	2.799	0.758	3.376	2.099	1.939	1.754	3.187	0.284	1.145
2.954	1.72	1.541	3.863	0.3	1.244	3.95	1.252	2.436	0.821

p m shankar

data (Sohan)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right)^{\frac{b}{a}} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 2.4783 b = 2.4783 Weibull fit : MSE = 0.00015617

$$f_X(x) = 2\left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

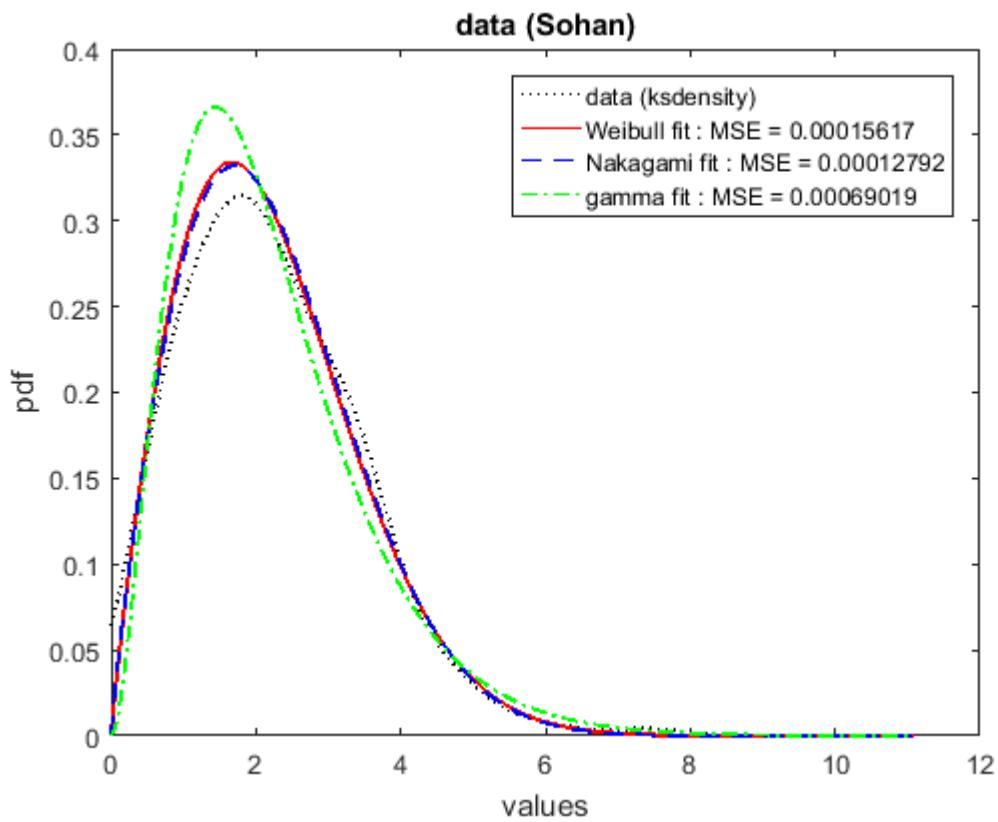
m = 0.92642 Ω = 6.3037 Nakagami fit : MSE = 0.00012792

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 2.9135 b = 0.75439 gamma fit : MSE = 0.00069019

best fit: Nakagami

p m shankar



data (Stanford)

2.206	1.367	1.472	3.271	4.249	1.132	1.396	2.883	0.897	2.918
2.394	2.132	1.379	0.431	1.227	1.937	2.939	1.394	0.614	3.598
2.29	1.406	1.215	0.681	2.002	1.62	2.523	2.623	3.018	3.555
2.822	0.862	2.608	2.364	1.859	2.019	1.11	3.126	3.582	1.435
2.48	2.687	2.531	1.961	1.996	1.499	2.49	1.32	0.581	2.298
2.471	2.239	2.108	1.075	0.805	2.446	3.256	1.895	2.326	1.933
1.327	1.68	2.59	1.975	1.182	4.305	2.262	1.309	1.967	1.909
2.18	0.596	2.725	1.587	2.725	1.187	1.405	1.206	2.895	0.135
1.452	0.76	0.516	1.215	2.035	0.755	1.214	0.864	0.346	2.169
1.972	0.433	3.382	3.021	1.858	2.194	0.618	1.995	1.626	3.532
3.234	0.86	1.696	2.826	2.754	3.25	2.711	1.292	1.891	0.821
2.645	1.679	2.832	3.445	1.738	1.964	0.941	2.28	2.67	0.593
0.417	0.707	2.95	1.707	3.429	1.296	2.134	1.321	1.514	1.416
2.092	0.628	0.944	2.005	0.929	0.768	2.833	0.478	1.537	1.259
1.975	2.276	1.858	0.147	0.886	3.941	2.388	1.89	1.589	1.908
1.866	0.977	2.034	0.634	1.205	0.662	2.27	2.536	1.586	3.08
2.059	2.699	3.019	2.522	1.205	3.289	1.678	1.5	0.517	2.136
3.072	0.741	1.927	2.535	2.969	1.814	2.38	1.396	3.85	2.206
2.049	2.353	0.364	3.836	0.83	2.257	2.512	0.512	0.652	2.959
1.68	0.84	3.915	0.73	2.065	0.538	0.839	2.838	2.123	1.058

p m shankar

data (Stanford)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right) \frac{x^{b-1}}{a} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

$a = 2.137$ $b = 2.137$ Weibull fit : MSE = 0.0010227

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

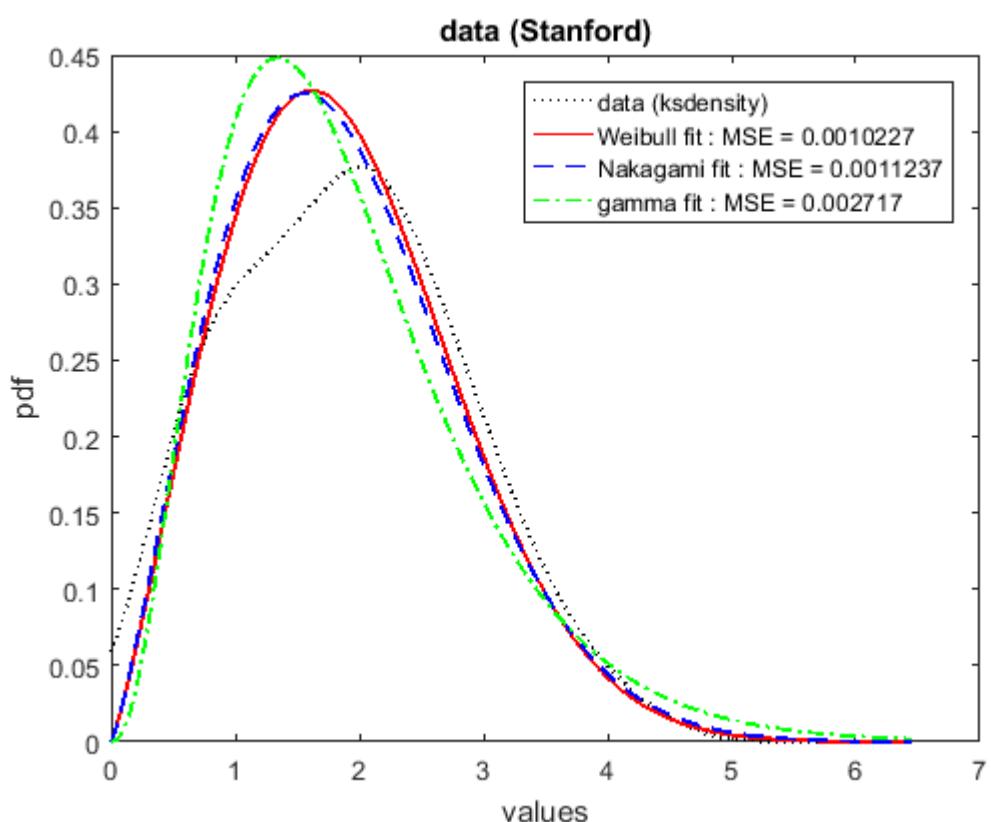
$m = 1.1082$ $\Omega = 4.4219$ Nakagami fit : MSE = 0.0011237

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

$a = 3.4346$ $b = 0.55131$ gamma fit : MSE = 0.002717

best fit: Weibull

p m shankar



data (Syrlo)

3.037	1.631	-1.654	2.513	3.406	4.695	1.496	2.274	1.5	1.01
0.014	0.139	2.075	1.86	0.52	7.691	0.797	2.986	1.257	-2.871
1.307	2.527	1.98	3.838	2.127	-0.012	1.21	-1.75	-0.047	-0.469
-0.49	1.607	2.745	1.139	0.972	-0.245	1.928	4.236	1.718	2.447
-0.963	5.76	3.437	1.467	-0.084	-0.606	0.192	-1.318	0.095	3.133
-2.175	-0.139	-0.249	-0.459	2.988	-0.451	4.271	-0.264	5.196	4.282
4.68	1.698	2.025	1.901	0.939	1.276	2.71	0.807	-1.52	2.34
-2.564	-1.423	1.79	1.205	-4.934	2.191	-4.011	3.186	2.03	2.223
6.21	4.754	3.895	-0.54	5.37	1.81	0.175	2.601	0.501	-0.457
3.028	2.821	3.349	2.61	0.902	-1.114	2.788	1.51	1.081	-2.458
-2.729	4.334	-0.068	2.04	2.266	4.551	3.371	3.255	-1.961	3.489
1.319	0.994	-2.13	5.623	0.591	3.417	-1.353	0.413	3.183	2.576
3.27	2.401	-0.124	2.533	1.813	-0.472	5.033	4.644	1.932	2.391
0.123	4.103	3.478	2.536	0.977	1.026	1.42	1.684	3.691	2.808
3.091	0.913	1.485	1.147	1.377	0.528	-1.505	-2.183	2.742	0.624
-0.575	2.638	1.093	-0.685	0.63	1.378	0.65	-0.308	-0.091	3.745
1.696	-1.311	0.107	-0.873	-0.707	0.22	0.201	-0.471	-0.944	3.42
4.547	0.914	0.25	2.177	0.582	0.069	4.641	-0.76	0.478	0.923
2.248	1.261	2.426	4.568	2.088	1.863	-2.882	2.822	2.539	0.268
3.978	0.1	3.016	2.256	1.11	0.895	-0.114	-0.916	-0.71	1.399

p m shankar

data (Syrlo)

Data set contains -ve values

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

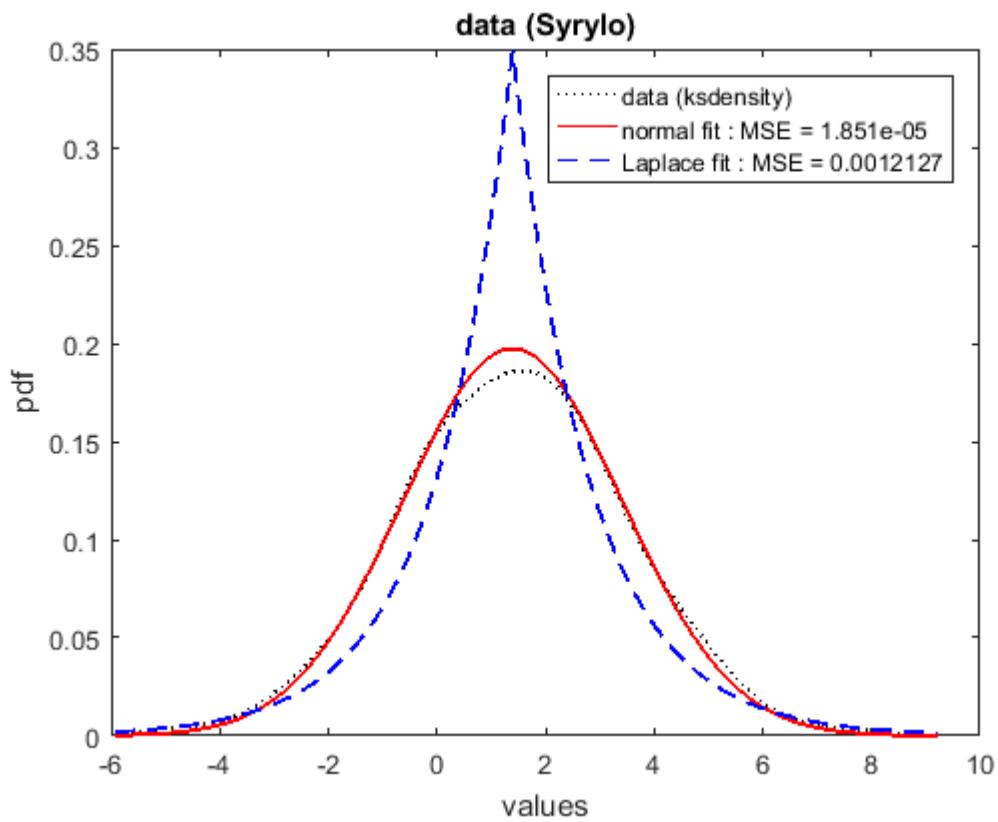
$\mu = 1.3958$ $\sigma = 2.0219$ normal fit : MSE = 1.851e-05

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

$a = 1.3958$ $b = 1.4297$ Laplace fit : MSE = 0.0012127

best fit: normal

p m shankar



data (Teperov)

2.838	1.487	3.461	-0.556	1.777	1.004	3.548	2.732	3.297	-1.115
3.8	0.452	1.069	2.875	0.598	3.887	-0.303	-0.816	-1.076	-0.751
3.479	2.421	3.422	0.713	1.194	-1.627	0.188	1.114	3.543	2.556
-2.286	-0.185	3.57	2.451	-0.258	-1.99	2.296	2.073	0.732	1.511
2.089	3.341	1.186	1.373	1.115	1.452	6.191	2.942	0.105	3.3
-4.638	4.057	1.722	0.382	1.89	-1.196	-0.391	1.577	0.031	3.86
-1.698	5.141	3.319	0.029	4.69	0.926	5.079	2.186	-2.759	-0.027
-0.193	2.852	1.368	-1.273	0.616	-0.003	2.481	4.012	1.311	-0.613
1.588	3.371	0.046	-0.098	0.656	2.363	-0.286	3.988	-0.804	-2.221
1.385	3.077	0.483	0.278	1.952	0.638	3.028	0.374	-1.858	1.078
1.255	-0.516	0.213	1.28	1.793	1.744	1.944	1.969	1.49	2.883
3.574	1.269	-0.668	2.329	1.519	2.341	0.56	4.595	0.325	4.496
1.734	2.338	3.966	1.96	1.715	2.31	0.626	1.834	0.701	1.652
3.263	-0.786	-2.67	3.214	-2.599	2.467	-2.603	1.563	1.748	0.57
1.348	1.053	1.316	1.596	4.128	0.913	1.178	4.338	1.829	1.941
-0.329	-1.333	1.759	3.547	2.736	-3.439	2.562	3.284	0.8	-0.144
-0.873	0.975	1.913	1.136	0.661	2.004	2.029	0.186	0.929	1.681
3.9	1.956	1.073	0.92	0.191	-0.358	0.836	1.508	0.704	1.338
0.668	2.172	-1.554	3.13	0.12	2.564	3.63	-0.748	0.987	-0.977
2.468	2.867	0.412	2.145	-1.859	-1.153	0.707	1.003	-0.371	0.827

p m shankar

data (Teperov)

Data set contains -ve values

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

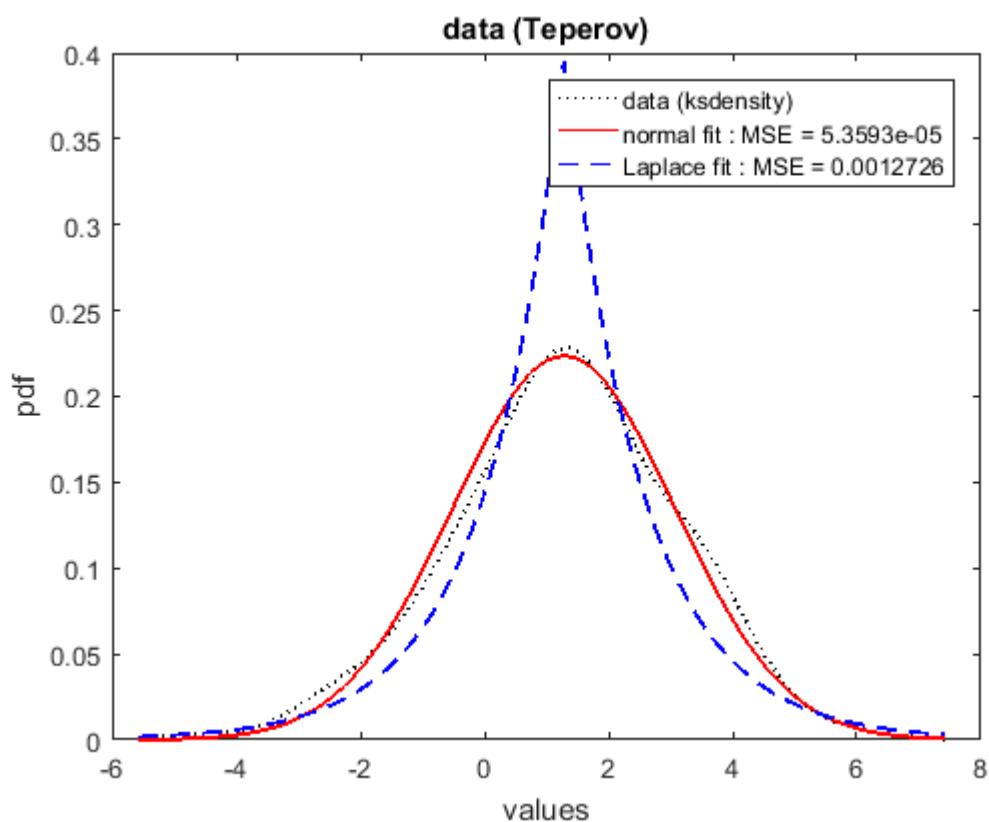
$\mu = 1.2811$ $\sigma = 1.7851$ normal fit : MSE = 5.3593e-05

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

$a = 1.2811$ $b = 1.2623$ Laplace fit : MSE = 0.0012726

best fit: normal

p m shankar



data (Traore)

7.309	0.126	10.55	5.519	4.779	2.008	0.899	0.264	3.886	3.084
4.797	12.106	4.677	0.213	0.727	7.032	1.227	1.506	7.396	0.294
2.133	2.094	2.647	11.005	0.384	0.144	4.496	2.146	4.048	3.903
4.616	0.067	2.028	0.281	3.74	12.456	0.319	5.072	7.603	3.372
1.438	2.482	0.525	1.094	8.543	0.666	0.823	4.973	2.373	0.815
4.054	2.01	3.759	6.63	6.867	2.605	3.187	2.501	1.648	2.726
2.396	2.258	1.087	5.534	1.127	3.43	0.358	0.581	3.175	5.248
4.554	2.321	0.275	0.999	2.054	0.143	0.698	3.61	6.904	0.402
2.398	8.045	1.763	1.08	5.913	2.204	7.719	3.514	6.481	4.405
0.38	3.129	1.378	2.767	6.393	2.642	1.687	4.372	0.469	8.103
5.765	2.603	4.277	0.853	0.053	4.867	0.523	6.24	3.538	0.544
1.974	0.641	1.404	4.984	0.485	0.85	4.552	4.484	1.85	1.197
0.648	2.879	0.816	2.496	0.451	4.356	3.981	0.192	0.173	7.688
0.237	3.906	0.384	1.738	0.674	0.324	3.877	0.588	0.795	0.762
1.249	0.459	7.818	7.551	2.375	0.025	2.662	8.163	1.243	5.414
1.145	7.764	1.594	1.092	5.06	0.654	0.187	4.125	1.313	2.945
0.567	5.083	0.807	1.923	1.191	3.326	1.029	1.348	1.106	1.127
0.678	5.287	3.947	1.644	4.294	7.387	0.356	0.914	2.755	2.342
3.74	1.09	2.392	3.139	3.84	0.217	0.489	1.29	4.758	0.605
0.55	8.51	3.791	0.66	10.857	0.851	2.219	0.772	2.417	7.884

p m shankar

data (Traore)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right)^{\frac{b}{a}} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 3.0467 b = 3.0467 Weibull fit : MSE = 0.0005491

$$f_X(x) = 2\left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

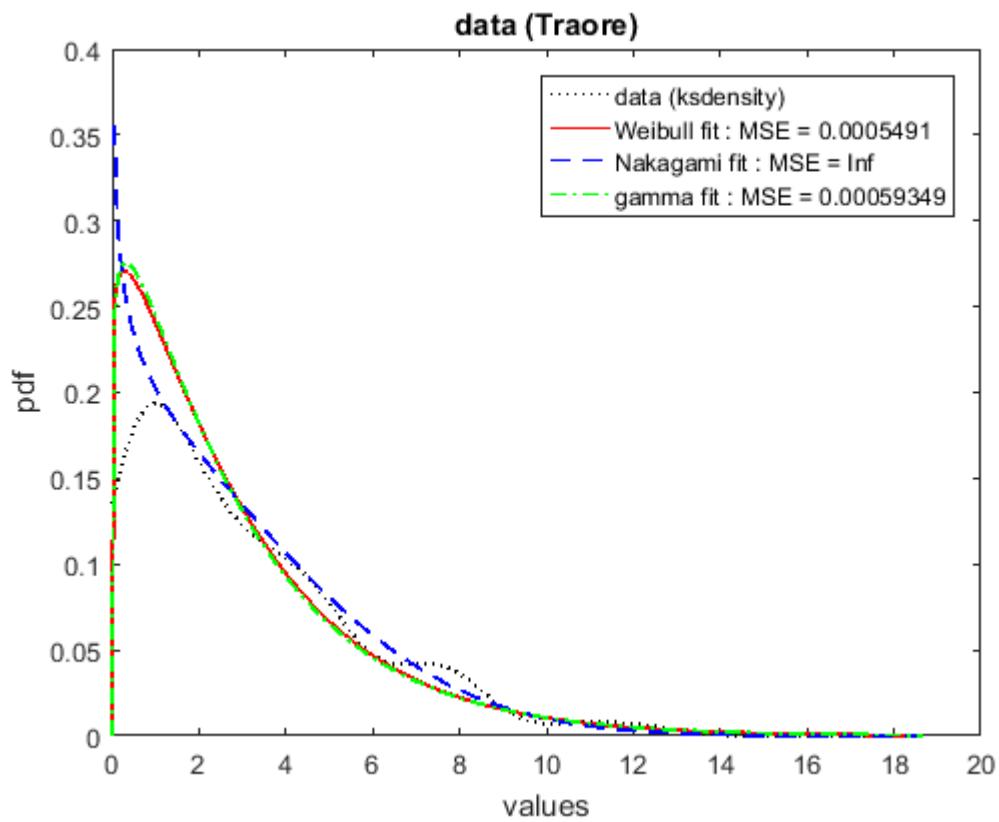
m = 0.40995 Ω = 15.6675 Nakagami fit : MSE = Inf

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 1.1222 b = 2.6348 gamma fit : MSE = 0.00059349

best fit: Weibull

p m shankar



data (Truong)

1.825	1.633	0.771	3.729	1.247	0.421	1.181	1.343	0.557	2.569
3.119	0.199	1.662	3.697	2.532	1.61	2.628	1.446	0.811	2.993
2.348	1.452	1.703	2.872	3.252	2.066	1.38	1.48	5.607	4.314
2.034	3.774	3.651	2.875	5.355	3.181	1.882	1.383	4.452	3.538
1.05	2.242	0.727	0.643	3.917	3.758	5.081	1.621	0.93	1.851
1.612	1.515	1.717	3.241	2.634	0.86	2.311	0.849	2.251	0.793
2.138	2.622	2.912	2.059	2.74	2.517	4.695	2.108	2.257	1.274
0.998	0.714	0.559	3.458	2.062	2.222	1.233	2.59	2.63	1.481
2.137	1.692	4.384	0.719	2.437	4.136	0.348	0.487	0.624	2.321
2.851	0.662	4.916	0.676	0.636	1.005	1.523	3.605	1.455	0.519
1.399	2.31	3.897	3.526	3.387	2.823	1.247	3.13	0.628	1.323
0.44	2.741	2.028	0.927	1.247	0.759	1.793	3.414	1.989	2.506
2.474	0.857	0.899	5.24	3.287	4.196	2.802	1.156	4.89	1.931
2.993	5.033	2.386	1.427	1.163	1.74	1.353	4.106	1.112	3.07
2.975	3.455	1.9	0.899	1.897	1.892	1.511	2.11	2.791	2.918
4.979	0.51	1.792	2.434	2.172	1.587	2.257	1.791	0.943	1.386
0.331	1.45	4.023	2.959	2.528	2.613	2.331	2.51	0.97	2.685
1.172	2.719	2.421	3.701	2.487	4.525	3.439	1.527	1.931	2.321
1.893	1.086	2.544	1.02	2.45	2.798	1.962	0.982	2.212	1.346
2.43	1.155	2.966	1.613	2.917	0.667	3.19	0.809	1.008	2.551

p m shankar

data (Truong)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right) \frac{x^{b-1}}{a} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 2.4672 b = 2.4672 Weibull fit : MSE = 0.00021868

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

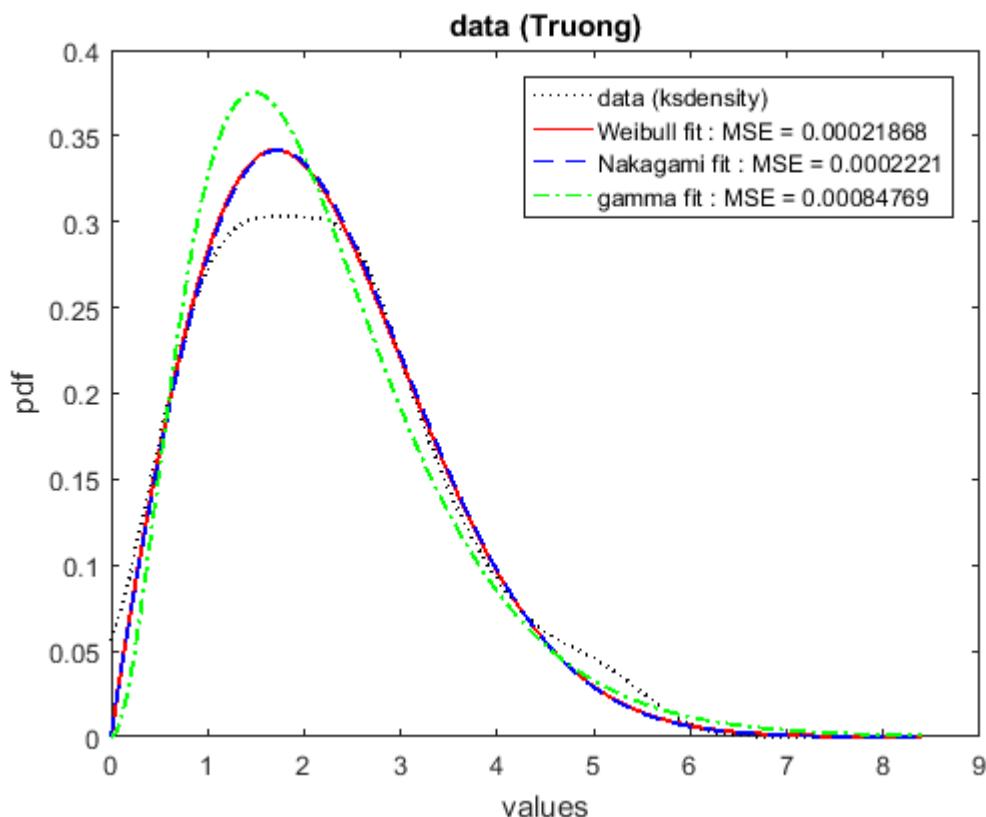
m = 0.97067 Ω = 6.1581 Nakagami fit : MSE = 0.0002221

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{a-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 3.0926 b = 0.70595 gamma fit : MSE = 0.00084769

best fit: Weibull

p m shankar



data (Tweed)

2.013	3.606	3.458	2.463	2.741	2.121	3.096	3.909	1.703	2.759
1.174	3.267	0.635	2.15	0.983	0.944	2.405	3.381	2.394	1.181
1.387	1.334	1.157	1.56	0.535	1.881	2.106	2.308	1.069	3.988
1.301	2.375	0.994	3.052	1.105	3.751	2.102	2.966	3.462	2.848
3.284	2.079	1.838	1.175	3.719	2.453	1.59	3.433	2.474	1.733
1.552	1.694	1.709	2.635	2.029	1.282	1.674	2.59	2.074	3.303
2.415	0.854	3.334	1.821	2.382	2.454	1.148	2.85	1.633	1.732
2.643	3.535	3.149	2.3	3.641	1.658	2.29	2.571	1.691	2.816
3.842	3.214	1.486	1.856	1.067	1.673	2.426	2.101	2.47	2.4
1.748	3.168	1.38	1.813	1.647	2.843	0.966	0.795	1.161	2.686
1.385	1.509	3.287	2.808	3.526	1.074	3.323	2.85	2.951	3.089
3.605	3.059	1.635	2.119	1.72	3.018	2.087	2.428	1.22	2.636
2.799	2.158	2.608	3.045	2.693	1.427	2.617	0.525	2.766	1.925
0.928	1.753	2.82	1.153	0.827	2.404	0.961	2.294	2.398	3.898
3.255	0.532	1.398	2.057	3.097	1.598	1.957	0.625	4.471	1.946
0.875	1.976	2.381	1.38	2.005	2.564	2.288	2.216	2.115	2.929
2.552	2.68	1.866	0.727	2.287	1.216	1.263	0.573	2.552	2.435
1.258	2.104	3.733	1.527	2.403	1.346	1.694	2.131	1.898	2.285
2.72	2.126	1.674	2.097	1.258	3.163	2.022	3.159	1.031	1.521
1.738	1.179	0.336	1.285	2.857	1.814	3.298	2.566	2.025	2.868

p m shankar

data (Tweed)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right)^{\frac{b}{a}} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 2.4285 b = 2.4285 Weibull fit : MSE = 0.0005568

$$f_X(x) = 2\left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

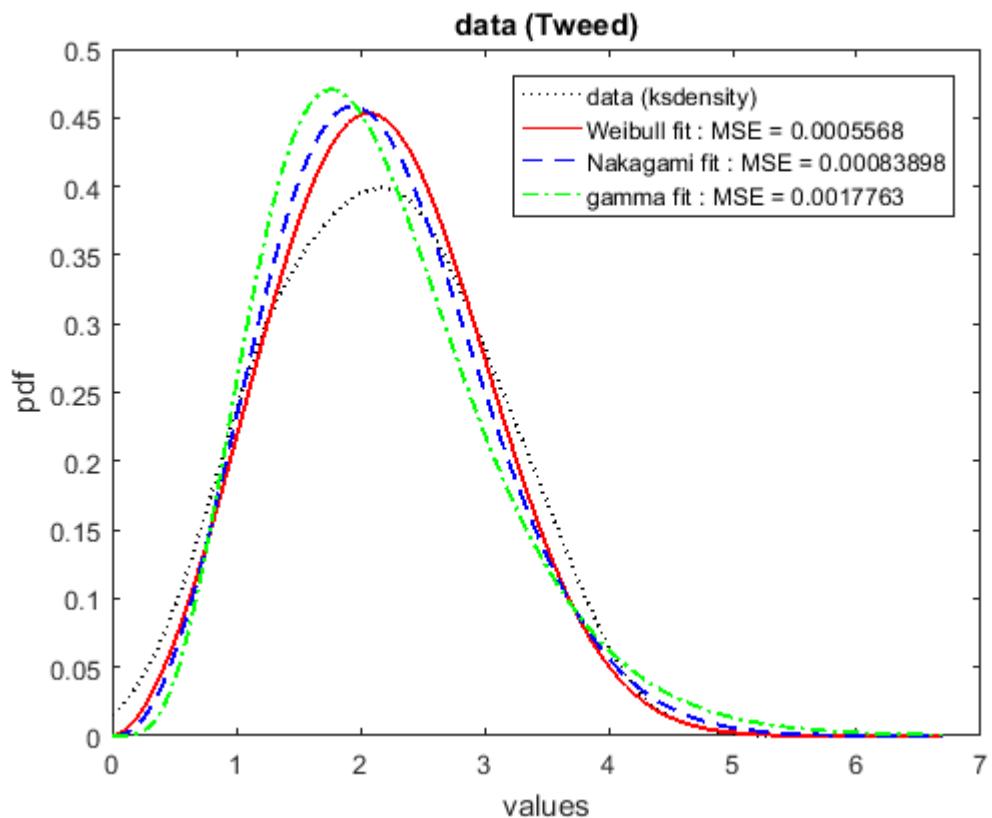
m = 1.6581 Ω = 5.3852 Nakagami fit : MSE = 0.00083898

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 5.5083 b = 0.39205 gamma fit : MSE = 0.0017763

best fit: Weibull

p m shankar



data (Vader)

```

-2.859 0.428 -3.018 -0.636 -0.631 -2.316 -5.073 -3.687 -1.454 -1.094
1.838 0.706 -3.249 -3.027 -0.893 -0.779 -1.117 -5.74 -1.786 0.338
-1.74 1.373 -5.236 -2.994 -4.364 -0.361 -1.796 -3.912 1.353 -2.12
-1.385 -2.403 -0.691 1.39 -2.867 -2.253 -3.613 -2.907 2.448 -0.857
-5.489 -2.496 -0.765 0.521 -3.527 -3.483 -1.25 -0.335 -1.22 -3.101
-3.231 -0.815 1.698 0.923 -2.544 -2.374 -2.274 -0.262 -0.924 0.542
-6.472 -2.69 3.137 -2.804 2.418 -2.084 0.605 1.818 -3.935 -2.487
-2.333 -0.7 1.199 0.607 -0.939 -0.202 -5.387 0.522 0.557 -4.157
-0.116 -2.969 -0.829 0.4 -4.452 -1.448 -0.971 -3.026 -3.196 -2.058
1.266 -1.908 0.552 0.254 -0.1 0.409 -0.424 -1.308 -0.999 -2.556
-4.759 -4.329 -1.291 -1.981 -2.203 -3.006 -5.739 -0.736 -0.945 -3.224
-5.675 -5.352 -1.766 -1.267 0.281 -0.597 0.158 -0.414 -1.805 -2.666
-0.732 -1.154 -2.665 2.717 -2.251 0.153 1.061 -3.936 -0.53 -0.228
-1.221 -2.113 -0.054 -0.511 -1.377 -0.369 0.019 -2.989 -1.36 -1.644
-3.462 -3.092 -0.857 -4.555 1.001 -3.019 1.864 -2.223 2.847 -4.654
-0.271 -1.705 -3.686 -1.842 -0.845 -0.429 -0.22 -1.717 1.521 1.398
-1.755 -2.225 -0.378 -5.424 1.217 -2.671 -5.5 2.042 2.852 -1.061
-0.699 1.093 0.441 -0.036 -1.89 -1.487 -3.622 -0.719 0.467 0.03
-2.335 -2.329 -1.505 -3.152 -1.777 -2.5 1.219 -3.5 -1.274 -3.772
-3.218 0.976 -1.248 -1.701 -0.652 0.406 -2.044 -1.28 -1.106 -1.815

```

p m shankar

data (Vader)

Data set contains -ve values

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

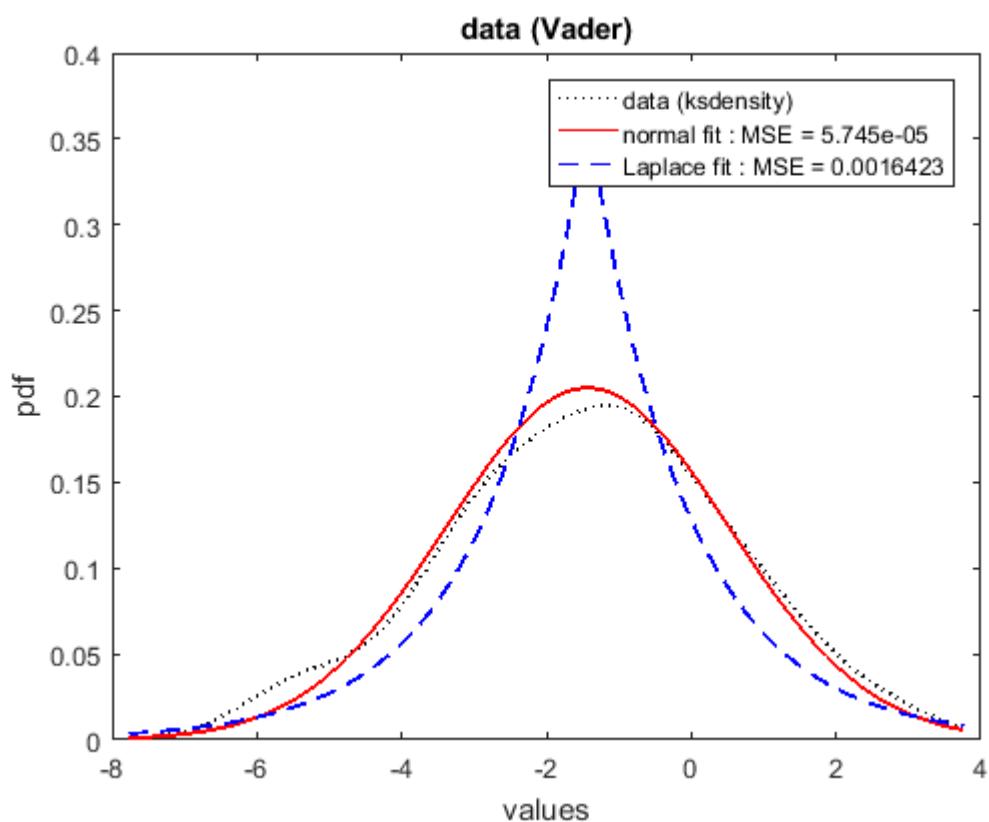
$\mu = -1.4329$ $\sigma = 1.9468$ normal fit : MSE = 5.745e-05

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

$a = -1.4329$ $b = 1.3766$ Laplace fit : MSE = 0.0016423

best fit: normal

p m shankar



data (Wan)

3.588	0.811	6.316	0.56	1.648	4.122	0.85	5.178	0.287	0.764
0.593	5.599	0.141	0.866	1.71	1.672	4.629	1.553	6.228	7.028
0.818	1.336	3.982	4.246	0.321	1.453	0.315	1.564	3.066	3.332
4.513	6.049	0.466	6.217	3.035	0.525	0.419	5.077	2.851	4.053
4.32	0.053	1.778	0.114	1.183	0.34	4.952	4.384	3.219	8.819
1.792	3.462	2.047	2.126	0.018	0.585	1.617	5.63	2.909	2.681
1.965	3.929	0.686	0.596	0.61	2.577	0.886	0.437	4.359	1.891
2.764	5.504	1.053	3.263	2.51	1.594	0.819	4.733	1.531	1.309
1.211	5.13	7.239	1.9	3.524	2.027	0.563	0.979	2.237	1.464
4.451	2.11	3.077	1.802	4.437	4.262	1.204	1.41	2.889	2.125
2.095	5.38	0.613	2.151	2.202	0.581	1.915	5.647	2.116	2.232
1.179	2.409	4.192	0.316	2.06	2.445	1.048	0.568	0.81	1.114
1.293	2.961	1.045	3.566	0.936	8.04	4.967	5.642	1.224	5.192
3.189	1.926	0.979	0.713	1.689	0.296	2.527	5.571	3.363	0.789
1.608	5.021	1.111	2.164	0.686	4.177	1.13	0.556	1.877	2.381
2.235	5.35	3.337	3.063	11.146	2.996	3.338	4.644	6.038	2.751
2.061	0.31	3.378	3.936	2.145	1.571	5.59	2.631	2.897	2.52
0.599	5.176	0.34	12.837	0.987	6.487	2.713	5.8	1.514	0.177
1.594	3.468	0.915	3.048	3.452	1.908	2.05	3.023	1.952	0.823
1.062	7.508	0.418	7.547	1.717	6.844	0.847	0.396	7.101	1.089

p m shankar

data (Wan)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right)^{\frac{b}{a}} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 2.9118 b = 2.9118 Weibull fit : MSE = 0.00021027

$$f_X(x) = 2\left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

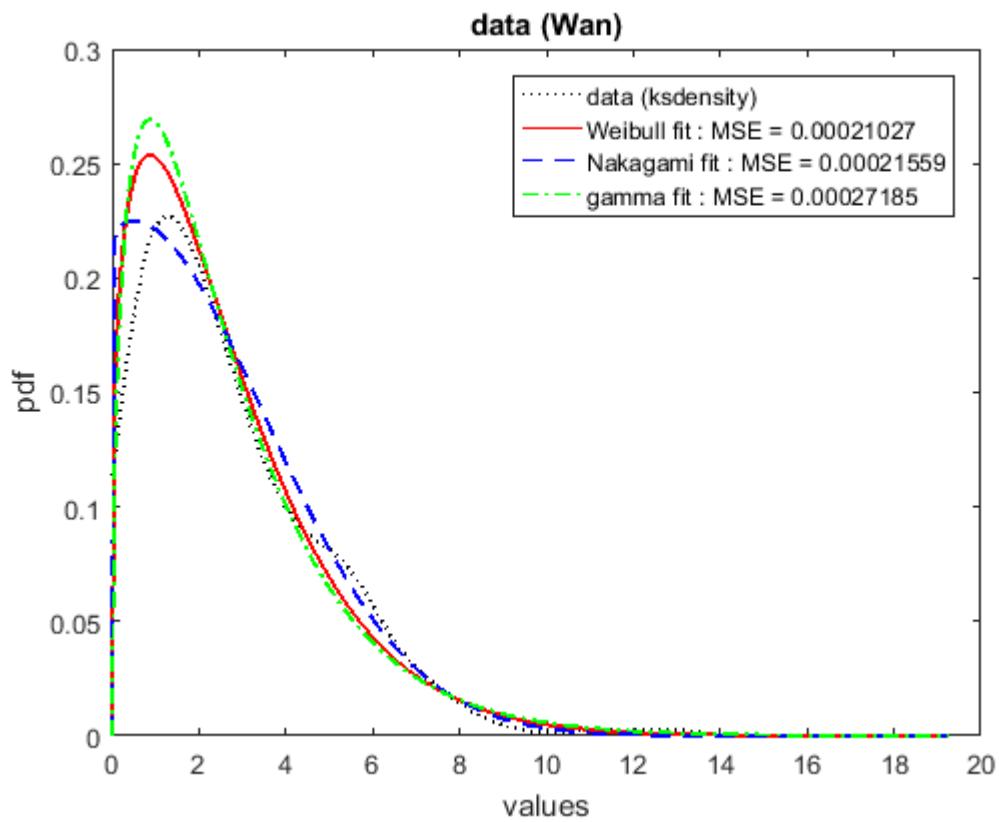
m = 0.51102 Ω = 11.877 Nakagami fit : MSE = 0.00021559

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 1.4774 b = 1.8271 gamma fit : MSE = 0.00027185

best fit: Weibull

p m shankar



data (Weinberger)

4.247	0.861	0.122	0.313	4.841	2.879	1.302	4.106	3.915	1.201
1.002	2.472	1.422	0.205	0.423	0.45	1.96	0.923	2.705	3.984
2.227	5.489	3.673	1.357	4.029	2.52	1.246	0.664	2.007	4.536
2.23	1.048	4.425	3.377	2.166	0.448	1.447	1.524	5.563	2.062
4.008	2.381	4.204	8.22	1.748	0.118	9.909	9.036	2.145	6.306
0.979	7.335	3.846	0.253	0.576	0.068	1.116	4.345	2.382	5.088
3.141	3.896	3.647	3.415	2.538	2.387	4.328	3.768	4.816	0.032
2.822	3.332	4.213	2.654	1.318	19.981	12.101	12.379	9.622	2.292
3.651	1.467	4.752	1.421	4.629	3.688	3.639	2.215	6.149	1.895
1.633	1.856	2.133	2.45	1.047	0.147	0.53	1.282	1.88	0.871
1.822	3.474	0.21	6.636	3.592	5.673	1.34	2.045	0.549	1.544
7.778	0.946	0.781	1.937	1.33	2.804	0.513	0.284	1.088	3.469
1.552	5.464	2.157	5.396	1.587	2.132	2.665	3.069	7.759	5.026
0.045	0.436	6.634	2.281	5.62	0.584	1.47	0.678	6.765	7.416
1.9	3.554	0.225	1.042	2.63	1.195	4.426	2.046	2.216	0.538
3.869	1.123	3.587	0.098	1.371	1.613	8.315	0.842	3.936	0.567
1.362	0.373	1.355	12.115	1.184	0.093	2.265	2.597	1.728	6.255
0.804	0.087	5.333	0.202	2.045	1.096	0.968	0.32	3.439	5.042
3.284	1.084	2.207	2.115	2.709	5.746	0.319	9.339	2.522	6.884
1.922	0.581	0.229	0.445	2.317	0.806	3.039	2.174	0.401	0.578

p m shankar

data (Weinberger)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right) \frac{x^{b-1}}{a} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 2.9371 b = 2.9371 Weibull fit : MSE = 0.00030865

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

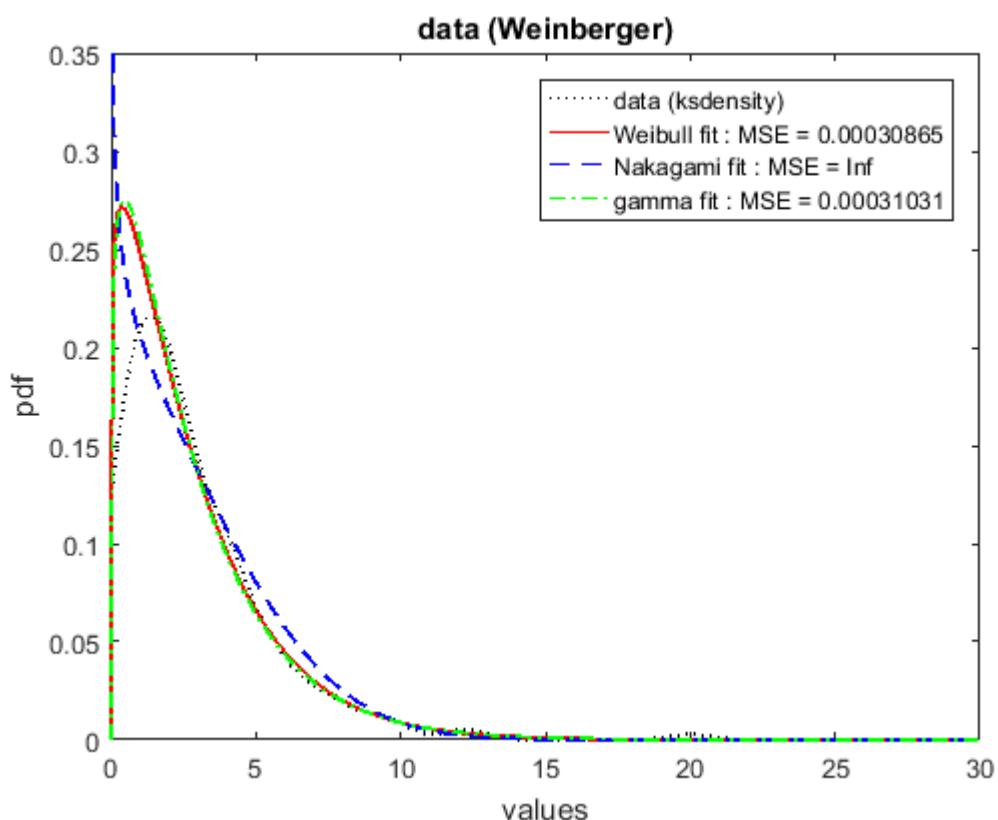
m = 0.4163 Ω = 14.8995 Nakagami fit : MSE = Inf

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 1.1982 b = 2.3555 gamma fit : MSE = 0.00031031

best fit: Weibull

p m shankar



data (Wojdylo)

2.467	2.503	1.689	2.965	2.052	2.927	3.308	2.137	1.187	3.143
1.152	2.278	1.221	3.085	2.3	1.915	1.977	2.943	2.392	3.123
3.196	3.177	2.335	0.517	1.248	3.643	2.861	1.119	1.819	4.274
3.645	3.406	2.41	0.737	4.285	1.723	2.04	2.702	3.732	1.494
1.797	2.119	2.398	1.082	2.501	2.375	2.586	0.922	2.999	1.444
2.664	1.837	1.264	2.317	3.05	2.179	1.659	1.812	3.331	1.116
0.378	1.385	2.155	2.924	3.426	1.132	1.567	1.959	3.19	2.543
2.98	2.002	3.18	2.483	1.176	1.651	3.215	2.109	2.965	2.305
2.095	3.513	2.895	1.668	2.367	0.845	2.36	1.577	2.286	1.898
2.017	1.682	3.031	1.176	2.114	1.631	3.112	2.833	3.019	1.835
2.215	3.082	2.53	1.329	3.366	2.345	3.304	3.226	2.168	0.725
2.292	3.377	2.508	0.751	2.023	2.308	2.183	2.533	1.831	1.969
3.085	3.612	2.102	3.089	2.411	2.188	2.976	3.303	1.3	1.054
2.765	3.402	3.165	3.199	1.971	2.832	1.712	2.471	1.633	1.052
1.719	2.89	1.748	2.949	3.688	2.342	3.705	0.703	0.629	0.329
0.385	2.454	2.529	2.767	3.62	3.116	3.008	1.968	2.871	2.739
2.095	2.689	1.895	1.705	2.303	2.163	1.369	2.051	3.015	0.953
1.902	3.096	2.373	2.861	1.46	2.42	1.428	2.32	1.079	3.246
1.818	1.924	1.632	2.005	1.776	3.566	2.918	2.328	1.185	1.296
0.911	3.239	2.807	3.012	2.106	2.508	2.239	2.412	2.479	3.257

p m shankar

data (Wojdylo)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right) \frac{x^{b-1}}{a} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 2.5512 b = 2.5512 Weibull fit : MSE = 0.00094419

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

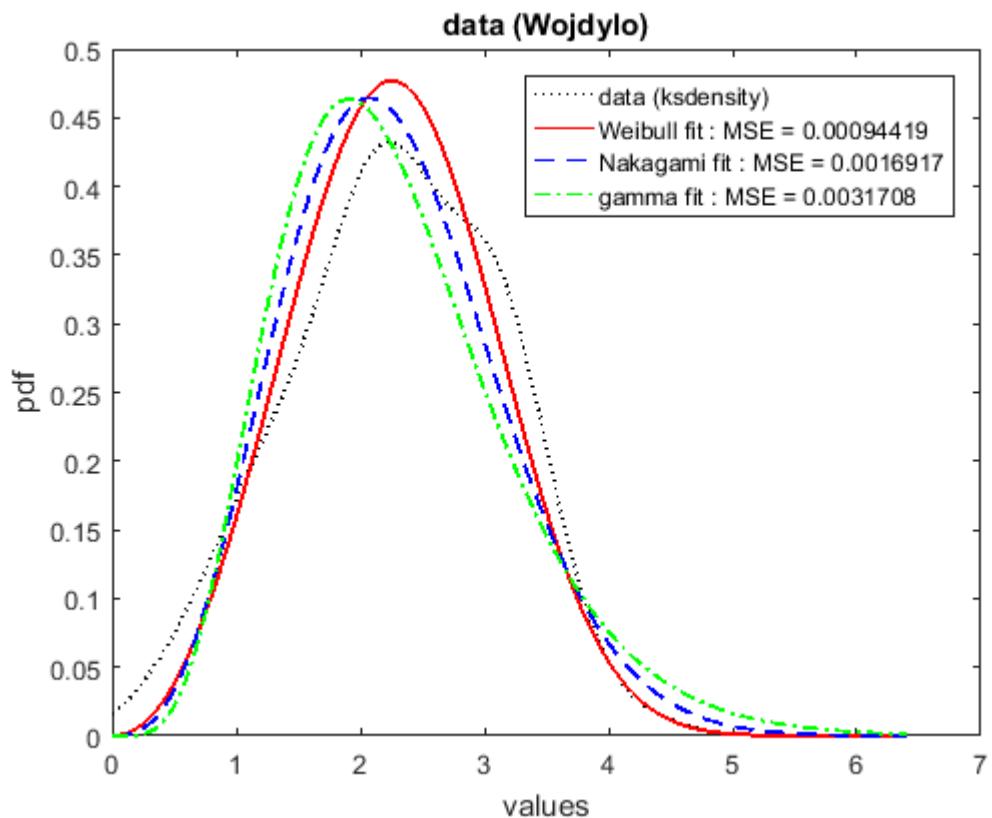
m = 1.8783 Ω = 5.8782 Nakagami fit : MSE = 0.0016917

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 6.0736 b = 0.37593 gamma fit : MSE = 0.0031708

best fit: Weibull

p m shankar



data (Yang)

2.581	1.364	1.531	2.074	8.058	0.391	0.859	1.701	3.5	8.877
3.368	3.505	2.886	2.007	5.083	2.91	1.067	4.249	3.249	2.364
6.232	1.268	2.774	6.117	4.029	2.905	1.146	5.125	8.155	0.45
2.266	1.33	1.164	0.281	3.981	1.032	3.264	1.309	4.2	3.76
10.13	4.646	0.471	3.314	1.552	0.678	1.282	2.352	1.901	0.916
1.832	4.373	5.275	13.343	1.154	0.871	3.391	6.264	3.383	2.531
2.172	3.083	3.558	2.194	3.352	6.818	0.887	5.164	2.659	2.899
2.329	9.98	3.145	0.716	2.053	1.39	4.906	4.331	2.194	0.391
2.025	0.55	2.132	4.517	6.794	1.524	2.764	2.512	3.215	0.564
3.957	0.831	1.193	4.354	0.345	8.534	2.86	2.206	1.343	3.118
3.741	0.866	2.817	1.66	0.471	1.852	2.226	0.691	3.558	0.706
2.369	0.946	1.549	3.364	6.681	5.44	6.539	2.057	1.783	0.866
3.068	1.799	2.285	3.296	1.196	2.214	2.264	8.348	1.813	4.117
5.921	3.558	1.387	1.688	1.745	1.353	3.634	1.527	1.726	0.278
3.797	2.376	5.083	3.873	0.817	2.356	4.663	4.83	2.722	2.346
2.551	1.354	4.902	1.214	3.278	2.223	1.773	1.445	1.148	1.665
5.379	0.627	1.664	1.438	4.649	2.737	3.834	0.596	6.204	2.167
1.808	1.012	3.05	7.413	2.257	0.967	2.479	2.885	0.566	1.702
0.18	7.183	1.2	6.506	1.364	3.313	4.378	4.708	1.263	3.817
1.088	0.436	3.942	1.33	1.876	2.418	2.15	2.184	1.507	3.489

p m shankar

data (Yang)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right) \frac{x^{b-1}}{a} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

a = 3.2025 b = 3.2025 Weibull fit : MSE = 8.9471e-05

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

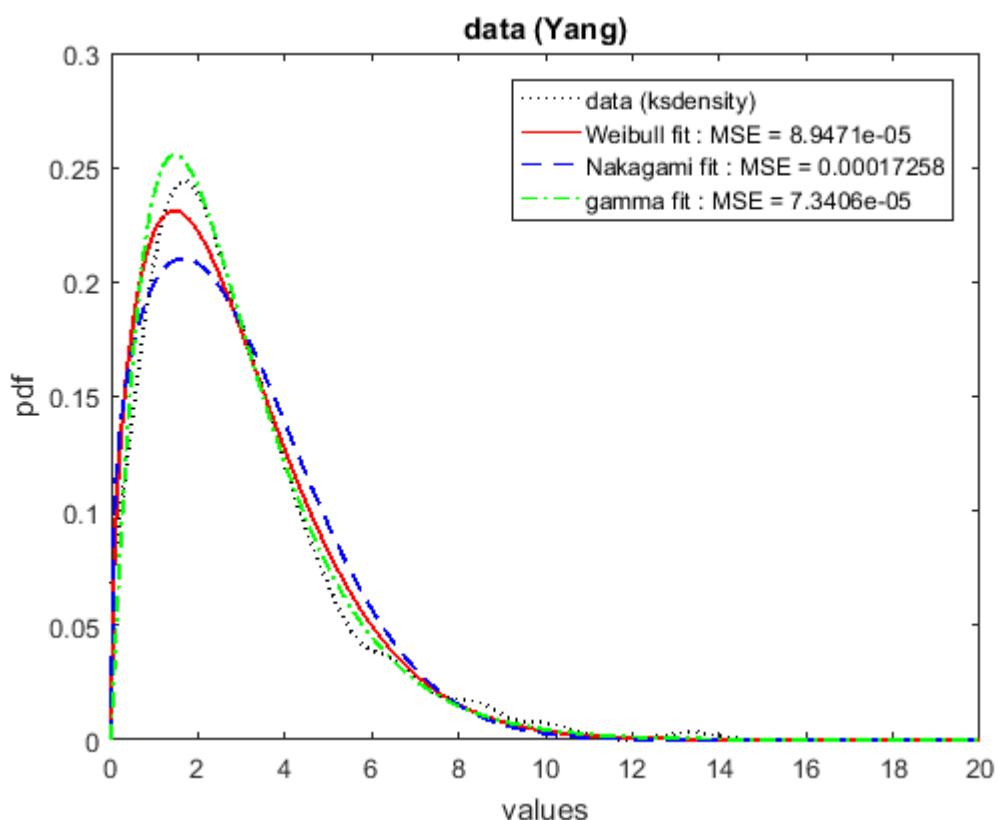
m = 0.63773 Ω = 12.7813 Nakagami fit : MSE = 0.00017258

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{a-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

a = 2.0304 b = 1.4214 gamma fit : MSE = 7.3406e-05

best fit: gamma

p m shankar



data (Yang)

-0.048	3.718	5.771	3.465	3.768	1.236	2.847	2.836	-2.553	-3.528
-1.208	-1.725	0.346	1.229	1.577	3.236	4.047	3.296	2.318	-0.077
0.848	0.787	3.15	-0.88	1.962	4.129	-0.58	0.401	2.969	1.272
4.606	1.483	4.726	1.085	1.751	0.998	2.476	0.865	1.664	2.448
2.756	1.471	3.932	-0.191	2.893	1.356	-0.314	0.335	-1.873	2.87
-0.555	1.934	4.728	0.871	4.979	3.69	0.551	1.172	-2.623	2.58
1.096	1.86	0.3	4.349	2.831	2.479	0.168	-0.37	5.142	0.739
3.222	0.459	3.58	4.483	2.875	-1.86	0.496	3.876	-0.998	4.386
4.616	1.021	1.011	0.012	3.978	-0.123	0.882	-0.926	3.373	-0.119
1.241	0.114	-1.47	0.751	3.297	-0.004	-0.174	0.738	1.157	-1.442
-0.136	0.13	0.788	2.348	-0.8	-1.152	0.243	4.145	1.343	2.351
2.077	3.365	2.209	1.728	0.972	1.137	2.502	2.271	0.279	3.428
-0.763	-0.917	5.17	0.478	-1.75	1.763	4.841	0.776	2.638	3.441
3.263	0.778	3.295	3.545	2.663	4.288	-1.583	0.647	1.186	2.545
-0.388	-0.865	2.005	-1.338	5.305	2.912	0.956	2.274	-0.637	3.25
0.257	2.789	3.468	6.593	4.66	3.826	2.183	3.306	0.875	1.816
-2.482	-0.678	0.471	0.784	3.342	-0.007	2.469	2.936	1.466	4.631
-0.404	-1.897	-1.121	2.303	-0.376	2.144	3.405	4.972	1.235	4.206
2.016	-1.081	0.125	0.088	0.026	4.771	1.763	-0.518	2.389	1.685
3.896	2.591	-0.871	-0.541	1.86	0.204	-1.984	1.14	2.303	3.065

p m shankar

data (Yang)

Data set contains -ve values

$$f_X(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \quad \text{normal pdf}$$

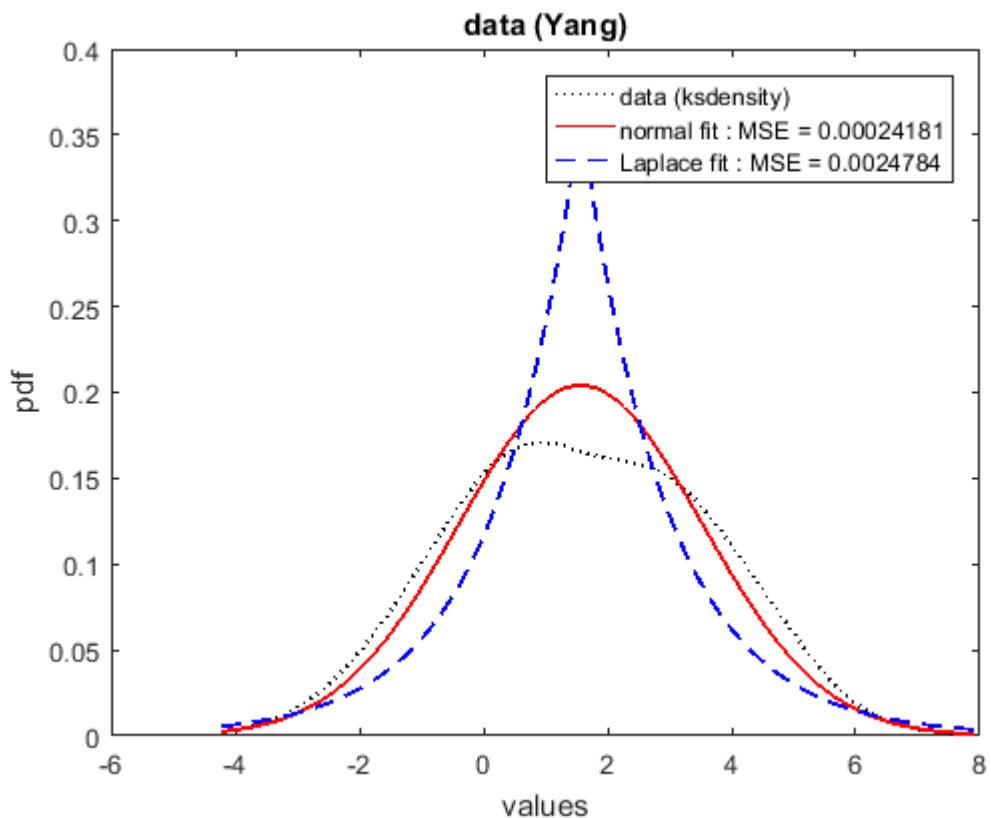
$$\mu = 1.5671 \quad \sigma = 1.9542 \quad \text{normal fit : MSE = 0.00024181}$$

$$f_X(x) = \frac{1}{2b} \exp\left(-\frac{|x-a|}{b}\right) \quad \text{Laplacian pdf}$$

$$a = 1.5671 \quad b = 1.3818 \quad \text{Laplace fit : MSE = 0.0024784}$$

best fit: normal

p m shankar



data (Zhong)

1.355	0.745	0.944	0.706	1.335	0.949	0.256	1.731	1.63	0.672
0.881	1.296	0.377	1.191	0.853	1.003	0.745	0.788	2.098	1.011
2.377	0.858	1.166	0.969	1.409	0.841	1.82	0.873	1.234	2.36
1.065	1.76	0.947	1.457	1.155	1.898	0.751	1.908	1.032	0.712
1.895	1.167	1.796	1.642	1.752	0.629	1.016	1.657	1.735	1.366
1.686	1.302	1.128	1.051	1.677	0.61	1.002	1.227	1.893	0.956
1.035	1.218	2	0.828	1.634	1.434	1.75	1.956	0.953	1.724
0.762	0.969	1.881	1.132	1.207	0.726	0.989	1.515	0.872	1.191
1.122	1.509	2.11	1.018	1.332	0.619	1.98	0.883	1.072	0.987
1.242	0.932	0.45	1.095	1.199	0.381	0.447	0.809	1.152	0.925
1.451	0.707	1.425	0.486	1.559	1.115	1.385	1.022	1.284	0.725
1.147	0.904	1.091	0.929	1.694	1.458	1.001	0.984	1.274	1.268
1.401	1.427	1.994	1.573	1.172	1.004	2.005	0.9	2.097	1.143
0.636	1.119	1.212	1.349	1.281	1.096	0.919	1.155	0.666	1.117
1.3	1.619	1.15	0.996	0.849	1.686	1.547	1.01	0.81	1.007
1.354	1.417	0.899	1.022	1.693	1.187	1.257	0.741	0.909	1.356
2.172	1.534	1.191	1.195	1.832	0.672	1.967	0.972	0.773	1.333
0.281	0.967	0.433	1.693	1.163	1.038	0.69	1.034	1.487	1.734
0.59	1.471	1.355	1.475	1.206	1.214	1.361	0.964	0.758	1.07
1.34	2.108	1.732	1.494	0.829	1.31	1.172	1.643	1.288	0.916

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data (Zhong)

Data set is completely positive

$$f_X(x) = \left(\frac{b}{a}\right) \frac{x^{b-1}}{a} \exp\left(-\frac{x^b}{a}\right) U(x) \quad \text{Weibull pdf}$$

$a = 1.3575 \ b = 1.3575$ Weibull fit : MSE = 0.004093

$$f_X(x) = 2 \left(\frac{m}{\Omega}\right)^m \frac{x^{2m-1}}{\Gamma(m)} \exp\left(-\frac{m}{\Omega}x^2\right) U(x) \quad \text{Nakagami pdf}$$

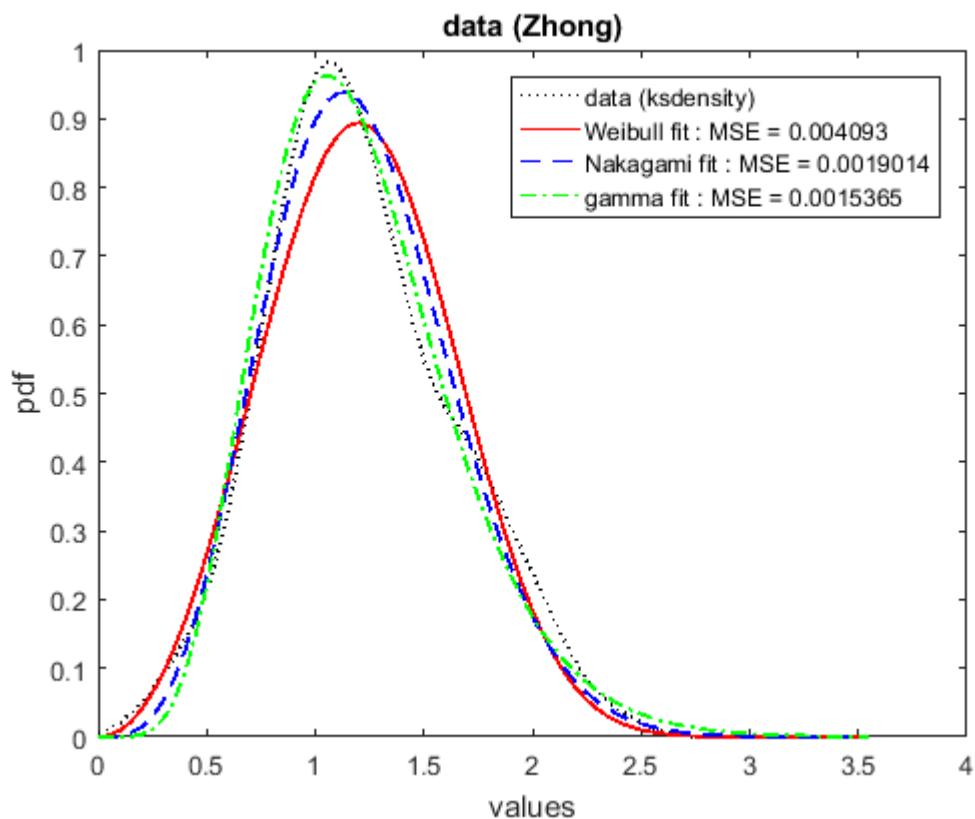
$m = 2.1788 \ \Omega = 1.6513$ Nakagami fit : MSE = 0.0019014

$$f_X(x) = \frac{1}{b^a \Gamma(a)} \frac{x^{-1}}{a} \exp\left(-\frac{x}{b}\right) U(x) \quad \text{gamma pdf}$$

$a = 7.6676 \ b = 0.15835$ gamma fit : MSE = 0.0015365

best fit: gamma

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