In[1]:=
$$f[c\_, pt\_, q\_, T\_, \mu\_, y\_, mo\_] := c\, pt\, \text{Sqrt}\left[pt^2 + mo^2\right] \text{Cosh}[y] \left(1 + (q-1)\, \frac{1}{T} \left(\text{Sqrt}\left[pt^2 + mo^2\right] \text{Cosh}[y] - \mu\right)\right)^{1/(1-q)}$$

In[2]:=
```
(*/-distributions of pions (+) at pd pd AT 2.67 TeV"
"0-5 pct"/*)
```

In[3]:=
```
pd27tc1 = {{0.15`, 1900.9`}, {0.2`, 2081.83`}, {0.25`, 2089.521`},
  {0.3`, 2001.694`}, {0.35`, 1875.999`}, {0.4`, 1738.595`},
  {0.45`, 1595.057`}, {0.5`, 1454.62`}, {0.55`, 1323.343`},
  {0.6`, 1203.148`}, {0.65`, 1094.434`}, {0.7`, 995.618`}, {0.75`, 904.533`},
  {0.8`, 819.934`}, {0.85`, 742.907`}, {0.9`, 673.253`}, {0.95`, 609.749`},
  {1.`, 524.273`}, {1.1`, 430.063`}, {1.2`, 351.045`}, {1.3`, 292.274`},
  {1.4`, 237.697`}, {1.5`, 197.63`}, {1.6`, 161.777`}, {1.7`, 133.973`},
  {1.8`, 109.936`}, {1.9`, 90.861`}, {2.`, 68.23807`}, {2.2`, 46.35203`},
  {2.4`, 31.36032`}, {2.6`, 21.22846`}, {2.8`, 14.32658`}, {3.`, 9.821356`}}
```

Out[3]=
```
{{0.15, 1900.9}, {0.2, 2081.83}, {0.25, 2089.52}, {0.3, 2001.69}, {0.35, 1876.},
 {0.4, 1738.6}, {0.45, 1595.06}, {0.5, 1454.62}, {0.55, 1323.34}, {0.6, 1203.15},
 {0.65, 1094.43}, {0.7, 995.618}, {0.75, 904.533}, {0.8, 819.934},
 {0.85, 742.907}, {0.9, 673.253}, {0.95, 609.749}, {1., 524.273},
 {1.1, 430.063}, {1.2, 351.045}, {1.3, 292.274}, {1.4, 237.697}, {1.5, 197.63},
 {1.6, 161.777}, {1.7, 133.973}, {1.8, 109.936}, {1.9, 90.861}, {2., 68.2381},
 {2.2, 46.352}, {2.4, 31.3603}, {2.6, 21.2285}, {2.8, 14.3266}, {3., 9.82136}}
```

In[4]:=
```
pd27tc2 = {{0.15`, 1558.104`}, {0.2`, 1682.95`}, {0.25`, 1682.545`},
  {0.3`, 1612.418`}, {0.35`, 1511.63`}, {0.4`, 1400.869`},
  {0.45`, 1285.027`}, {0.5`, 1172.783`}, {0.55`, 1067.853`},
  {0.6`, 970.326`}, {0.65`, 882.91`}, {0.7`, 803.4`}, {0.75`, 730.321`},
  {0.8`, 662.245`}, {0.85`, 599.935`}, {0.9`, 543.586`}, {0.95`, 492.636`},
  {1.`, 424.184`}, {1.1`, 348.211`}, {1.2`, 284.663`}, {1.3`, 237.242`},
  {1.4`, 193.092`}, {1.5`, 160.824`}, {1.6`, 131.736`}, {1.7`, 109.172`},
  {1.8`, 89.697`}, {1.9`, 74.163`}, {2.`, 55.77349`}, {2.2`, 37.97797`},
  {2.4`, 25.67787`}, {2.6`, 17.55844`}, {2.8`, 11.95669`}, {3.`, 8.211704`}}
```

Out[4]=
```
{{0.15, 1558.1}, {0.2, 1682.95}, {0.25, 1682.55}, {0.3, 1612.42}, {0.35, 1511.63},
 {0.4, 1400.87}, {0.45, 1285.03}, {0.5, 1172.78}, {0.55, 1067.85},
 {0.6, 970.326}, {0.65, 882.91}, {0.7, 803.4}, {0.75, 730.321}, {0.8, 662.245},
 {0.85, 599.935}, {0.9, 543.586}, {0.95, 492.636}, {1., 424.184},
 {1.1, 348.211}, {1.2, 284.663}, {1.3, 237.242}, {1.4, 193.092}, {1.5, 160.824},
 {1.6, 131.736}, {1.7, 109.172}, {1.8, 89.697}, {1.9, 74.163}, {2., 55.7735},
 {2.2, 37.978}, {2.4, 25.6779}, {2.6, 17.5584}, {2.8, 11.9567}, {3., 8.2117}}
```

In[5]:=
```
pd27tc3 = {{0.15`, 1182.519`}, {0.2`, 1262.51`}, {0.25`, 1257.703`},
   {0.3`, 1204.491`}, {0.35`, 1128.354`}, {0.4`, 1045.017`},
   {0.45`, 957.236`}, {0.5`, 874.028`}, {0.55`, 794.868`},
   {0.6`, 722.775`}, {0.65`, 657.502`}, {0.7`, 597.875`}, {0.75`, 543.08`},
   {0.8`, 492.408`}, {0.85`, 446.371`}, {0.9`, 403.976`}, {0.95`, 366.484`},
   {1.`, 315.55`}, {1.1`, 259.1`}, {1.2`, 211.852`}, {1.3`, 176.738`},
   {1.4`, 143.709`}, {1.5`, 119.82`}, {1.6`, 98.117`}, {1.7`, 81.463`},
   {1.8`, 66.928`}, {1.9`, 55.365`}, {2.`, 41.78154`}, {2.2`, 28.51323`},
   {2.4`, 19.47198`}, {2.6`, 13.3068`}, {2.8`, 9.122584`}, {3.`, 6.341017`}}
```

Out[5]=
```
{{0.15, 1182.52}, {0.2, 1262.51}, {0.25, 1257.7}, {0.3, 1204.49}, {0.35, 1128.35},
 {0.4, 1045.02}, {0.45, 957.236}, {0.5, 874.028}, {0.55, 794.868},
 {0.6, 722.775}, {0.65, 657.502}, {0.7, 597.875}, {0.75, 543.08},
 {0.8, 492.408}, {0.85, 446.371}, {0.9, 403.976}, {0.95, 366.484}, {1., 315.55},
 {1.1, 259.1}, {1.2, 211.852}, {1.3, 176.738}, {1.4, 143.709}, {1.5, 119.82},
 {1.6, 98.117}, {1.7, 81.463}, {1.8, 66.928}, {1.9, 55.365}, {2., 41.7815},
 {2.2, 28.5132}, {2.4, 19.472}, {2.6, 13.3068}, {2.8, 9.12258}, {3., 6.34102}}
```

In[6]:=
```
pd27tc4 = {{0.15`, 809.189`}, {0.2`, 854.526`}, {0.25`, 848.377`},
   {0.3`, 810.281`}, {0.35`, 757.169`}, {0.4`, 699.757`},
   {0.45`, 639.37`}, {0.5`, 582.832`}, {0.55`, 529.463`}, {0.6`, 480.834`},
   {0.65`, 436.925`}, {0.7`, 396.92`}, {0.75`, 360.115`}, {0.8`, 326.117`},
   {0.85`, 295.056`}, {0.9`, 267.085`}, {0.95`, 241.942`},
   {1.`, 207.855`}, {1.1`, 170.511`}, {1.2`, 139.266`}, {1.3`, 116.089`},
   {1.4`, 94.385`}, {1.5`, 78.659`}, {1.6`, 64.265`}, {1.7`, 53.298`},
   {1.8`, 43.697`}, {1.9`, 36.255`}, {2.`, 27.26901`}, {2.2`, 18.63253`},
   {2.4`, 12.78015`}, {2.6`, 8.798573`}, {2.8`, 6.049132`}, {3.`, 4.22463`}}
```

Out[6]=
```
{{0.15, 809.189}, {0.2, 854.526}, {0.25, 848.377}, {0.3, 810.281}, {0.35, 757.169},
 {0.4, 699.757}, {0.45, 639.37}, {0.5, 582.832}, {0.55, 529.463}, {0.6, 480.834},
 {0.65, 436.925}, {0.7, 396.92}, {0.75, 360.115}, {0.8, 326.117},
 {0.85, 295.056}, {0.9, 267.085}, {0.95, 241.942}, {1., 207.855},
 {1.1, 170.511}, {1.2, 139.266}, {1.3, 116.089}, {1.4, 94.385}, {1.5, 78.659},
 {1.6, 64.265}, {1.7, 53.298}, {1.8, 43.697}, {1.9, 36.255}, {2., 27.269},
 {2.2, 18.6325}, {2.4, 12.7802}, {2.6, 8.79857}, {2.8, 6.04913}, {3., 4.22463}}
```

In[7]:=
```
pd27tc5 = {{0.15`, 540.038`}, {0.2`, 564.9`}, {0.25`, 557.846`},
   {0.3`, 530.579`}, {0.35`, 494.076`}, {0.4`, 454.713`}, {0.45`, 414.`},
   {0.5`, 376.287`}, {0.55`, 340.875`}, {0.6`, 308.775`}, {0.65`, 280.097`},
   {0.7`, 253.78`}, {0.75`, 229.775`}, {0.8`, 207.613`}, {0.85`, 187.438`},
   {0.9`, 169.326`}, {0.95`, 153.085`}, {1.`, 131.238`}, {1.1`, 107.174`},
   {1.2`, 87.415`}, {1.3`, 72.647`}, {1.4`, 58.92`}, {1.5`, 49.023`},
   {1.6`, 39.974`}, {1.7`, 33.143`}, {1.8`, 27.202`}, {1.9`, 22.506`},
   {2.`, 16.95305`}, {2.2`, 11.62343`}, {2.4`, 8.013993`},
   {2.6`, 5.545818`}, {2.8`, 3.838913`}, {3.`, 2.719659`}}
```

Out[7]=
```
{{0.15, 540.038}, {0.2, 564.9}, {0.25, 557.846}, {0.3, 530.579}, {0.35, 494.076},
 {0.4, 454.713}, {0.45, 414.}, {0.5, 376.287}, {0.55, 340.875}, {0.6, 308.775},
 {0.65, 280.097}, {0.7, 253.78}, {0.75, 229.775}, {0.8, 207.613},
 {0.85, 187.438}, {0.9, 169.326}, {0.95, 153.085}, {1., 131.238},
 {1.1, 107.174}, {1.2, 87.415}, {1.3, 72.647}, {1.4, 58.92}, {1.5, 49.023},
 {1.6, 39.974}, {1.7, 33.143}, {1.8, 27.202}, {1.9, 22.506}, {2., 16.9531},
 {2.2, 11.6234}, {2.4, 8.01399}, {2.6, 5.54582}, {2.8, 3.83891}, {3., 2.71966}}
```

In[8]:=
```
pd27tc6 = {{0.15`, 344.152`}, {0.2`, 357.223`}, {0.25`, 350.806`},
   {0.3`, 331.875`}, {0.35`, 307.488`}, {0.4`, 281.405`}, {0.45`, 254.982`},
   {0.5`, 230.687`}, {0.55`, 208.153`}, {0.6`, 187.765`}, {0.65`, 169.903`},
   {0.7`, 153.138`}, {0.75`, 138.265`}, {0.8`, 124.536`}, {0.85`, 112.169`},
   {0.9`, 100.9`}, {0.95`, 91.055`}, {1.`, 77.802`}, {1.1`, 63.207`},
   {1.2`, 51.258`}, {1.3`, 42.469`}, {1.4`, 34.341`}, {1.5`, 28.495`},
   {1.6`, 23.121`}, {1.7`, 19.128`}, {1.8`, 15.593`}, {1.9`, 12.925`},
   {2.`, 9.727605`}, {2.2`, 6.636296`}, {2.4`, 4.582778`},
   {2.6`, 3.188731`}, {2.8`, 2.234335`}, {3.`, 1.591217`}}
```

Out[8]=
```
{{0.15, 344.152}, {0.2, 357.223}, {0.25, 350.806}, {0.3, 331.875}, {0.35, 307.488},
 {0.4, 281.405}, {0.45, 254.982}, {0.5, 230.687}, {0.55, 208.153},
 {0.6, 187.765}, {0.65, 169.903}, {0.7, 153.138}, {0.75, 138.265},
 {0.8, 124.536}, {0.85, 112.169}, {0.9, 100.9}, {0.95, 91.055}, {1., 77.802},
 {1.1, 63.207}, {1.2, 51.258}, {1.3, 42.469}, {1.4, 34.341}, {1.5, 28.495},
 {1.6, 23.121}, {1.7, 19.128}, {1.8, 15.593}, {1.9, 12.925}, {2., 9.72761},
 {2.2, 6.6363}, {2.4, 4.58278}, {2.6, 3.18873}, {2.8, 2.23434}, {3., 1.59122}}
```

In[9]:=
```
pd27tc7 = {{0.15`, 204.509`}, {0.2`, 210.733`}, {0.25`, 205.256`},
   {0.3`, 192.841`}, {0.35`, 177.354`}, {0.4`, 161.227`}, {0.45`, 145.149`},
   {0.5`, 130.588`}, {0.55`, 117.24`}, {0.6`, 105.303`}, {0.65`, 94.643`},
   {0.7`, 85.044`}, {0.75`, 76.472`}, {0.8`, 68.529`}, {0.85`, 61.444`},
   {0.9`, 55.148`}, {0.95`, 49.491`}, {1.`, 42.085`}, {1.1`, 34.017`},
   {1.2`, 27.433`}, {1.3`, 22.613`}, {1.4`, 18.219`}, {1.5`, 15.048`},
   {1.6`, 12.17`}, {1.7`, 10.073`}, {1.8`, 8.218`}, {1.9`, 6.787`},
   {2.`, 5.112891`}, {2.2`, 3.501309`}, {2.4`, 2.430577`},
   {2.6`, 1.707171`}, {2.8`, 1.203317`}, {3.`, 0.8613599`}}
```

Out[9]=
```
{{0.15, 204.509}, {0.2, 210.733}, {0.25, 205.256}, {0.3, 192.841},
 {0.35, 177.354}, {0.4, 161.227}, {0.45, 145.149}, {0.5, 130.588},
 {0.55, 117.24}, {0.6, 105.303}, {0.65, 94.643}, {0.7, 85.044}, {0.75, 76.472},
 {0.8, 68.529}, {0.85, 61.444}, {0.9, 55.148}, {0.95, 49.491}, {1., 42.085},
 {1.1, 34.017}, {1.2, 27.433}, {1.3, 22.613}, {1.4, 18.219}, {1.5, 15.048},
 {1.6, 12.17}, {1.7, 10.073}, {1.8, 8.218}, {1.9, 6.787}, {2., 5.11289},
 {2.2, 3.50131}, {2.4, 2.43058}, {2.6, 1.70717}, {2.8, 1.20332}, {3., 0.86136}}
```

In[10]:=
```
pd27tc8 = {{0.15`, 110.954`}, {0.2`, 113.259`}, {0.25`, 109.408`},
   {0.3`, 101.817`}, {0.35`, 92.975`}, {0.4`, 83.817`}, {0.45`, 74.926`},
   {0.5`, 66.987`}, {0.55`, 59.685`}, {0.6`, 53.263`}, {0.65`, 47.62`},
   {0.7`, 42.545`}, {0.75`, 38.101`}, {0.8`, 33.935`}, {0.85`, 30.295`},
   {0.9`, 27.086`}, {0.95`, 24.218`}, {1.`, 20.469`}, {1.1`, 16.402`},
   {1.2`, 13.149`}, {1.3`, 10.798`}, {1.4`, 8.647`}, {1.5`, 7.135`}, {1.6`, 5.743`},
   {1.7`, 4.73`}, {1.8`, 3.853`}, {1.9`, 3.187`}, {2.`, 2.394326`}, {2.2`, 1.6477`},
   {2.4`, 1.147946`}, {2.6`, 0.8115173`}, {2.8`, 0.5763694`}, {3.`, 0.4151517`}}
```

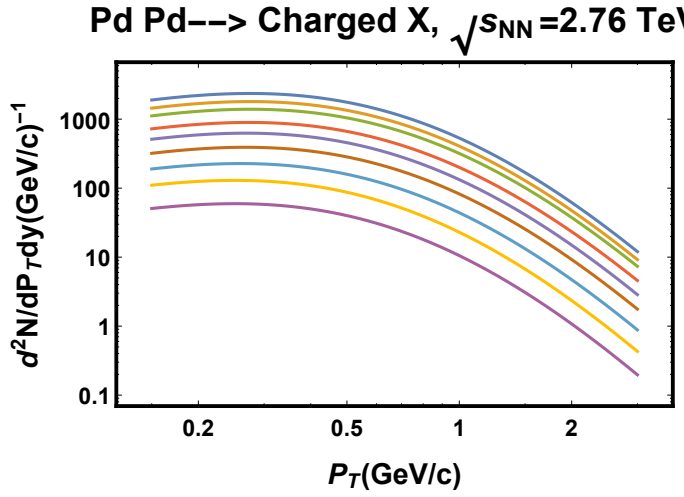
Out[10]=
```
{{0.15, 110.954}, {0.2, 113.259}, {0.25, 109.408}, {0.3, 101.817},
 {0.35, 92.975}, {0.4, 83.817}, {0.45, 74.926}, {0.5, 66.987}, {0.55, 59.685},
 {0.6, 53.263}, {0.65, 47.62}, {0.7, 42.545}, {0.75, 38.101}, {0.8, 33.935},
 {0.85, 30.295}, {0.9, 27.086}, {0.95, 24.218}, {1., 20.469}, {1.1, 16.402},
 {1.2, 13.149}, {1.3, 10.798}, {1.4, 8.647}, {1.5, 7.135}, {1.6, 5.743},
 {1.7, 4.73}, {1.8, 3.853}, {1.9, 3.187}, {2., 2.39433}, {2.2, 1.6477},
 {2.4, 1.14795}, {2.6, 0.811517}, {2.8, 0.576369}, {3., 0.415152}}
```

In[11]:=
```
pd27tc9 = {{0.15`, 53.146`}, {0.2`, 53.819`}, {0.25`, 51.596`}, {0.3`, 47.614`},
   {0.35`, 43.069`}, {0.4`, 38.516`}, {0.45`, 34.175`}, {0.5`, 30.309`},
   {0.55`, 26.801`}, {0.6`, 23.871`}, {0.65`, 21.147`}, {0.7`, 18.763`},
   {0.75`, 16.715`}, {0.8`, 14.821`}, {0.85`, 13.177`}, {0.9`, 11.701`},
   {0.95`, 10.437`}, {1.`, 8.774`}, {1.1`, 6.985`}, {1.2`, 5.56`},
   {1.3`, 4.546`}, {1.4`, 3.64`}, {1.5`, 2.996`}, {1.6`, 2.41`}, {1.7`, 1.988`},
   {1.8`, 1.611`}, {1.9`, 1.331`}, {2.`, 1.008348`}, {2.2`, 0.6934877`},
   {2.4`, 0.4864638`}, {2.6`, 0.3478235`}, {2.8`, 0.2502709`}, {3.`, 0.1804752`}}
```

Out[11]=
```
{{0.15, 53.146}, {0.2, 53.819}, {0.25, 51.596}, {0.3, 47.614},
 {0.35, 43.069}, {0.4, 38.516}, {0.45, 34.175}, {0.5, 30.309}, {0.55, 26.801},
 {0.6, 23.871}, {0.65, 21.147}, {0.7, 18.763}, {0.75, 16.715}, {0.8, 14.821},
 {0.85, 13.177}, {0.9, 11.701}, {0.95, 10.437}, {1., 8.774}, {1.1, 6.985},
 {1.2, 5.56}, {1.3, 4.546}, {1.4, 3.64}, {1.5, 2.996}, {1.6, 2.41},
 {1.7, 1.988}, {1.8, 1.611}, {1.9, 1.331}, {2., 1.00835}, {2.2, 0.693488},
 {2.4, 0.486464}, {2.6, 0.347824}, {2.8, 0.250271}, {3., 0.180475}}
```

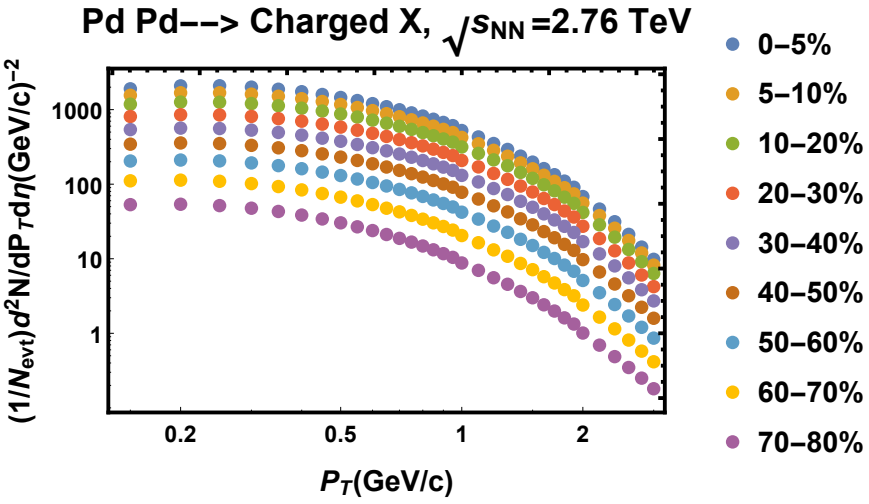
In[12]:=
```
Fpd2Tev = LogLogPlot[{f[c, pt, 1.125, T, μ, 0.`, 0.13957018`] /.
    {c → 2.4832, T → 0.438104, μ → 2.7205},
   f[c, pt, 1.125, T, μ, 0.`, 0.13957018`] /.
    {c → 2.0832, T → 0.43318104, μ → 2.6805},
   f[c, pt, 1.1255, T, μ, 0.`, 0.13957018`] /.
    {c → 1.820832, T → 0.4297104, μ → 2.6405},
   f[c, pt, 1.126, T, μ, 0.`, 0.13957018`] /. {c → 1.297032, T → 0.422504,
     μ → 2.5835}, f[c, pt, 1.125, T, μ, 0.`, 0.13957018`] /.
    {c → 0.94819, T → 0.410595, μ → 2.521494}, f[c, pt, 1.125, T, μ,
     0.`, 0.13957018`] /. {c → 0.594819, T → 0.4095, μ → 2.51494},
   f[c, pt, 1.125, T, μ, 0.`, 0.13957018`] /. {c → 0.34819, T → 0.398595,
     μ → 2.45494}, f[c, pt, 1.125, T, μ, 0.`, 0.13957018`] /.
    {c → 0.194819, T → 0.38895, μ → 2.40494}, f[c, pt, 1.125, T, μ, 0.`,
     0.13957018`] /. {c → 0.094819, T → 0.38595, μ → 2.381494}},
  {pt, 0.15`, 3.}, Frame → {{True, True}, {True, True}}, PlotStyle →
   (PointSize[#] & /@ {Large}), FrameTicksStyle → Directive[Bold, Dashed, 12],
  FrameLabel → {"PT (GeV/c)", "d2N/dPTdy (GeV/c)-1"},
  FrameStyle → Directive[GrayLevel[0], AbsoluteThickness[2.`]],
  LabelStyle → {Bold, 15}, PlotLabel → "Pd Pd--> Charged X, √sNN =2.76 TeV"]
```

Out[12]=



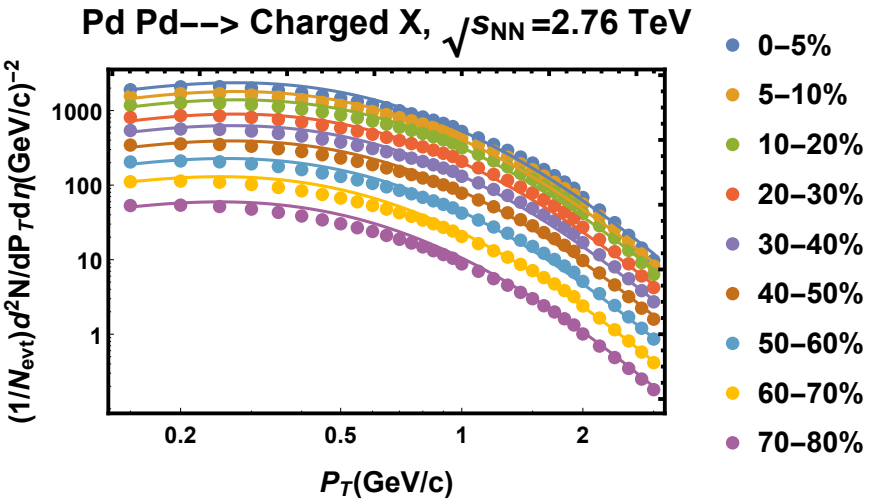
In[13]:=
```
dpd2tev = ListLogLogPlot[{pd27tc1, pd27tc2,
   pd27tc3, pd27tc4, pd27tc5, pd27tc6, pd27tc7, pd27tc8, pd27tc9},
  Frame → {{True, True}, {True, True}}, PlotStyle → (PointSize[#] & /@ {Large}),
  PlotStyle → {Red, Blue, Black, Green, Orange, Gray, Yellow, Brown, Purple,
    Silver, Gold, Pink}, FrameTicksStyle → Directive[Bold, Dashed, 12],
  Frame → {{True, False}, {True, False}}, PlotStyle →
   {Red, Blue, Black , Gray, Green}, FrameTicksStyle → Directive[Bold, Dashed, 12],
  FrameStyle → Directive[GrayLevel[0], AbsoluteThickness[2.`]],
  LabelStyle → {Bold, 15}, PlotLegends → Placed[{"0-5%", "5-10%", "10-20%",
     "20-30%", "30-40%", "40-50%", "50-60%", "60-70%", "70-80%"}, Right],
  FrameLabel → {"PT (GeV/c)", "(1/Nevt) d2N/dPTdη (GeV/c)-2"}, PlotLegends →
   Placed[{"√sNN = 0.9 TeV", "√sNN =2.36 TeV", "√sNN =7 Tev"}, Right],
  PlotLabel → "Pd Pd--> Charged X, √sNN =2.76 TeV"]
```

Out[13]=



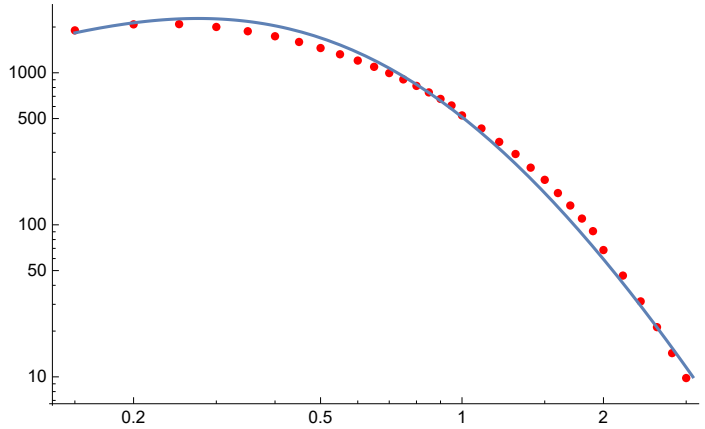
In[14]:=
```
Show[dpd2tev, Fpd2Tev]
```

Out[14]=



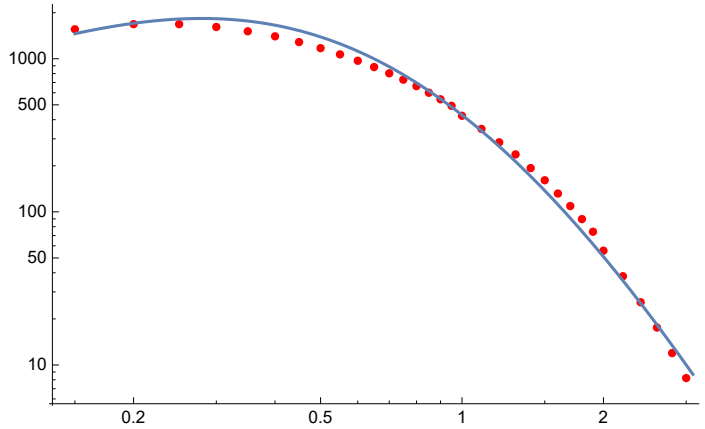
In[15]:=
```
Show[ListLogLogPlot[pd27tc1, PlotStyle → Red],
 LogLogPlot[f[c, pt, 1.125, T, μ, 0.`, 0.13957018`] /.
   {c → 3.294819, T → 0.420595, μ → 2.581494}, {pt, 0.15, 3.1}]]
```

Out[15]=



In[16]:=
```
Show[ListLogLogPlot[pd27tc2, PlotStyle → Red],
 LogLogPlot[f[c, pt, 1.125, T, μ, 0.`, 0.13957018`] /.
   {c → 2.9819, T → 0.41995, μ → 2.56194}, {pt, 0.15, 3.1}]]
```

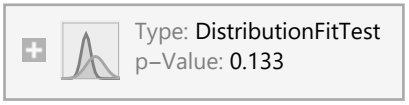
Out[16]=



In[17]:=
```
nss1 = Table[{y, f[c, y, 1.125, T, μ, 0.`, 0.13957018`] /.
    {c → 2.4832, T → 0.438104, μ → 2.7205}}, {y, 0.15`, 3, 0.086}]
```

Out[17]=
```
{{0.15, 1895.01}, {0.236, 2321.28}, {0.322, 2315.4},
 {0.408, 2087.06}, {0.494, 1783.06}, {0.58, 1479.65}, {0.666, 1208.94},
 {0.752, 980.25}, {0.838, 792.552}, {0.924, 640.858}, {1.01, 519.209},
 {1.096, 421.96}, {1.182, 344.237}, {1.268, 282.021}, {1.354, 232.083},
 {1.44, 191.86}, {1.526, 159.333}, {1.612, 132.921}, {1.698, 111.379},
 {1.784, 93.7321}, {1.87, 79.2128}, {1.956, 67.2148}, {2.042, 57.258},
 {2.128, 48.9607}, {2.214, 42.0184}, {2.3, 36.1869}, {2.386, 31.2699},
 {2.472, 27.1088}, {2.558, 23.5747}, {2.644, 20.5629},
 {2.73, 17.9877}, {2.816, 15.7788}, {2.902, 13.8781}, {2.988, 12.2379}}
```

In[18]:=
```
v = DistributionFitTest[pd27tc1, nss1, "HypothesisTestData"]
```

Out[18]=
```
HypothesisTestData[
```


```
]
```

In[19]:=
```
v["TestDataTable", All]
```

Out[19]=

	Statistic	P-Value
Anderson-Darling	0.174732	0.0152656
Cramér-von Mises	0.132146	0.00873135
Kolmogorov-Smirnov	0.366873	0.067298
Kuiper	0.853306	0.364066
Pearson χ^2	1.51181	0.880834
Szekely Energy	1540.22	0.133
Watson U^2	0.421878	0.0889905

In[20]:=
```
PearsonChiSquareTest[pd27tc1, nss1]
```

Out[20]=
```
0.880834
```

In[21]:=
```
Dimensions[nss1]
```

Out[21]=
```
{34, 2}
```

In[22]:=
```
Dimensions[pd27tc1]
```

Out[22]=
```
{33, 2}
```

In[23]:=
```
chi[nss1_] := Module[{dim, dof, rs, cs, n, full, exp,
    chis, restbl, tbl, exptbl, pv, res}, dim = Dimensions[nss1];
  dof = Times @@ (dim - 1);
  rs = Map[Plus @@ # &, nss1];
  cs = Map[Plus @@ # &, Transpose[nss1]];
  n = Total[Flatten[nss1]];
  full = Append[MapThread[Append[#1, #2] &, {nss1, rs}], Join[cs, {n}]];
  exp = Outer[Times, rs, cs] / n;
  chis = Total[Flatten[(nss1 - exp) ^ 2 / exp]];
  restbl =
   Grid[{{"Degrees of Freedom", dof}, {"Chi Square Statistic", N[chis, 3]},
     {"p-value", pv}}, Alignment → {{Left, "."}}, Frame → All];
  tbl = Grid[full, Background → {None, None,
      {{{dim[[1]] + 1, dim[[1]] + 1}, {1, dim[[2]] + 1}} → Pink,
       {{1, dim[[1]] + 1}, {dim[[2]] + 1, dim[[2]] + 1}} → Pink}}];
  exptbl = pd27tc1;
  pv = N[SurvivalFunction[ChiSquareDistribution[dof], chis]];
  res = {"ChiSquareStatistic" → N[chis, 2], "p-value" → pv,
    "result" → restbl, "table" → tbl, "expectedtable" → exptbl,
    "fullresults" → Column[{"Data Table", tbl, "Expected Values Table",
       exptbl, "Hypothesis Testing", restbl}, Frame → All,
      Background → {Yellow, None, Yellow, None, Yellow, None}],
    "Properties" → {"ChiSquareStatistic", "p-value", "result",
      "table", "expectedtable", "fullresults"}};
  # /. res &]
chisqt[nss1_, r_] := chi[nss1][r]
```

In[25]:= **chisqt[nss1, "fullresults"]**

Out[25]=

Data Table

0.15	1895.01	1895.16
0.236	2321.28	2321.51
0.322	2315.4	2315.72
0.408	2087.06	2087.47
0.494	1783.06	1783.55
0.58	1479.65	1480.23
0.666	1208.94	1209.61
0.752	980.25	981.002
0.838	792.552	793.39
0.924	640.858	641.782
1.01	519.209	520.219
1.096	421.96	423.056
1.182	344.237	345.419
1.268	282.021	283.289
1.354	232.083	233.437
1.44	191.86	193.3
1.526	159.333	160.859
1.612	132.921	134.533
1.698	111.379	113.077
1.784	93.7321	95.5161
1.87	79.2128	81.0828
1.956	67.2148	69.1708
2.042	57.258	59.3
2.128	48.9607	51.0887
2.214	42.0184	44.2324
2.3	36.1869	38.4869
2.386	31.2699	33.6559
2.472	27.1088	29.5808
2.558	23.5747	26.1327
2.644	20.5629	23.2069
2.73	17.9877	20.7177
2.816	15.7788	18.5948
2.902	13.8781	16.7801
2.988	12.2379	15.2259
53.346	18486.	18539.4

Expected Values Table

```
{{0.15, 1900.9}, {0.2, 2081.83}, {0.25, 2089.52}, {0.3, 2001.69}, {0.35, 1876.},
 {0.4, 1738.6}, {0.45, 1595.06}, {0.5, 1454.62}, {0.55, 1323.34}, {0.6, 1203.15},
 {0.65, 1094.43}, {0.7, 995.618}, {0.75, 904.533}, {0.8, 819.934},
 {0.85, 742.907}, {0.9, 673.253}, {0.95, 609.749}, {1., 524.273},
 {1.1, 430.063}, {1.2, 351.045}, {1.3, 292.274}, {1.4, 237.697}, {1.5, 197.63},
 {1.6, 161.777}, {1.7, 133.973}, {1.8, 109.936}, {1.9, 90.861}, {2., 68.2381},
 {2.2, 46.352}, {2.4, 31.3603}, {2.6, 21.2285}, {2.8, 14.3266}, {3., 9.82136}}
```

Hypothesis Testing

Degrees of Freedom	33
Chi Square Statistic	1144.36
p-value	3.49078×10^{-219}