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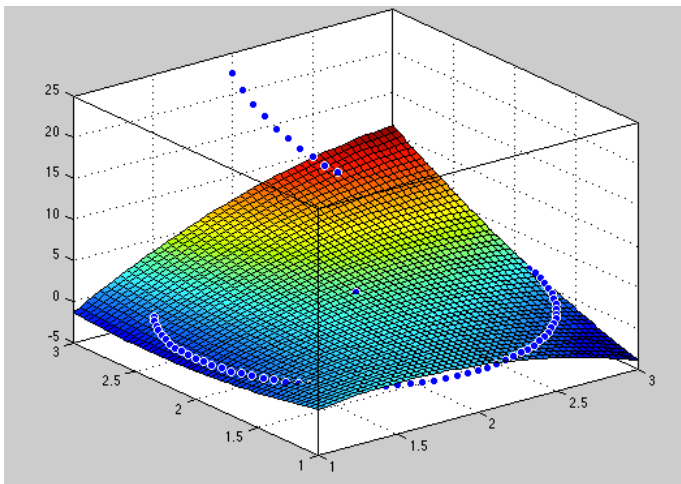
M17_10_13_Plotting_potential_surface.m x Attempt1.m x M17_10_13_Plotting_potential_surface_many_points.m x
1 - for a=1:1:5
2 -     for b=1:1:5
3 -         A(a,b)=a^2 %potential seed function
4 -     end
5 - end
6 - l=1
7 - for t=0:pi/4:2*pi
8 -     l=l+1
9 -     for j=1:1:5
10 -        for k=1:1:5
11 -            x=sin(t)+2; %particle motion in x-direction
12 -            y=cos(t)+2; %particle motion in y-direction
13 -            fprintf('%f',t);
14 -            potentialt=(0.9)*A(j,k)+0.1*(rand-0.5);
15 -            A(j,k)=potentialt; %potential at each grid point
16 -
17 -
18 -
19 -        end
20 -
21 -    end
22 -    position(l,1)=x;
23 -    position(l,2)=y;
24 -    position(l,3)=potentialt;
25 - end
26 -
27 - scatter3(position(:,1),position(:,2),position(:,3));
28 - sf=fit([position(:,1), position(:,2)], position(:,3), 'poly44');
29 - plot(sf,[position(:,1), position(:,2)], position(:,3))
30 -

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M17_10_13_Plotting_potential_surface.m x Attempt1.m x M17_10_13_Plotting_potential_surface_many_points.m x +
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13 -            fprintf('%f',t);
14 -            potentialt=(0.9)*A(j,k)+0.1*(rand-0.5);
15 -            A(j,k)=potentialt; %potential at each grid point
16 -            scatter3(j,k,A(j,k))
17 -        end
18 -    end
19 -    position(l,1)=x
20 -    position(l,2)=y
21 -    position(l,3)=potentialt
22 - end
23 - fprintf('%f %f %f\n%f %f %f\n%f %f %f\n',A(1,1),A(1,2),A(1,3),A(2,1),A(2,2),A(2,3),A(3,1),A(3,2),A(3,3))
24 -

```



Poly22

Linear model Poly22:

$$sf(x,y) = p00 + p10*x + p01*y + p20*x^2 + p11*x*y + p02*y^2$$

Coefficients (with 95% confidence bounds):

p00 =	0.1164	(-0.2617, 0.4945)
p10 =	0.0281	(-0.1568, 0.213)
p01 =	0.005248	(-0.1797, 0.1902)
p20 =	0.0007375	(-0.02724, 0.02871)
p11 =	-0.004246	(-0.02765, 0.01916)
p02 =	0.003423	(-0.02455, 0.0314)

fj =

0.0142

Linear model Poly11:

$$sf(x,y) = p00 + p10*x + p01*y$$

Coefficients (with 95% confidence bounds):

p00 =	0.2338	(0.07308, 0.3945)
p10 =	0.0007958	(-0.03514, 0.03673)
p01 =	-0.00889	(-0.04483, 0.02704)

fj =

7.9579e-04

fk =

-0.0089

