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clc
close all; clear all;
figure(1)
AT=dlmread(['2.txt']);
Z = AT(:, 3);
Bx =AT(:, 4);
By =AT(:, 5);
Bz = AT(:, 6);
B = sqrt(Bx.^2+ By.^2 + Bz.^2);
new_table = [Z B];
out1=sortrows(new_table,1);
z = out1(:, 1);
b = out1(:, 2);
z_interp = linspace(min(z), max(z),300);
b_interp = interp1(z, b, z_interp, 'cubic');
plot(z, b, 'bp')
hold on
plot(z_interp, b_interp, '-r')
hold off
grid
xlabel('Z')
ylabel('B')
legend('Original Data', 'Interpolation', 'Location', 'NW')

figure(2)
BT=dlmread(['2.txt']);
Z = BT(:, 3);
Bx = BT(:, 4);
By = BT(:, 5);
Bz = BT(:, 6);
gradBz2 = gradient(Bz);
gradBx2 = gradient(Bx, By);
B = sqrt(Bx.^2+ By.^2 + Bz.^2);
new_table = [Z B];
out2=sortrows(new_table,1);
z = out2(:, 1);
b = out2(:, 2);
z_interp = linspace(min(z), max(z),300);
b_interp = interp1(z, b, z_interp, 'cubic');
plot(z, b, 'bp')
hold on
plot(z_interp, b_interp, '-r')
hold off
grid
xlabel('Z')
ylabel('B')
legend('Original Data', 'Interpolation', 'Location', 'NW')

figure(3)
CT=dlmread(['3.txt']);
Z = CT(:, 3);
Bx =CT(:, 4);

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By =CT(:, 5);
Bz = CT(:, 6);
gradBz3 = gradient(Bz);
gradBx3 = gradient(Bx, By);
B = sqrt(Bx.^2+ By.^2 + Bz.^2);
new_table = [Z B];
out3=sortrows(new_table,1);
z = out3(:, 1);
b = out3(:, 2);
z_interp = linspace(min(z), max(z),300);
b_interp = interp1(z, b, z_interp, 'cubic');
plot(z, b, 'bp')
hold on
plot(z_interp, b_interp, '-r')
hold off
grid
xlabel('Z')
ylabel('B')
legend('Original Data', 'Interpolation', 'Location', 'NW')

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figure(4)
DT=dlmread(['4.txt']);
Z = DT(:, 3);
Bx =DT(:, 4);
By =DT(:, 5);
Bz = DT(:, 6);
gradBz4 = gradient(Bz);
gradBx4 = gradient(Bx, By);
B = sqrt(Bx.^2+ By.^2 + Bz.^2);
new_table = [Z B];
out4 = sortrows(new_table,1);
z = out4(:, 1);
b = out4(:, 2);
z_interp = linspace(min(z), max(z),300);
b_interp = interp1(z, b, z_interp, 'cubic');
plot(z, b, 'bp')
hold on
plot(z_interp, b_interp, '-r')
hold off
grid
xlabel('Z')
ylabel('B')
legend('Original Data', 'Interpolation', 'Location', 'NW')

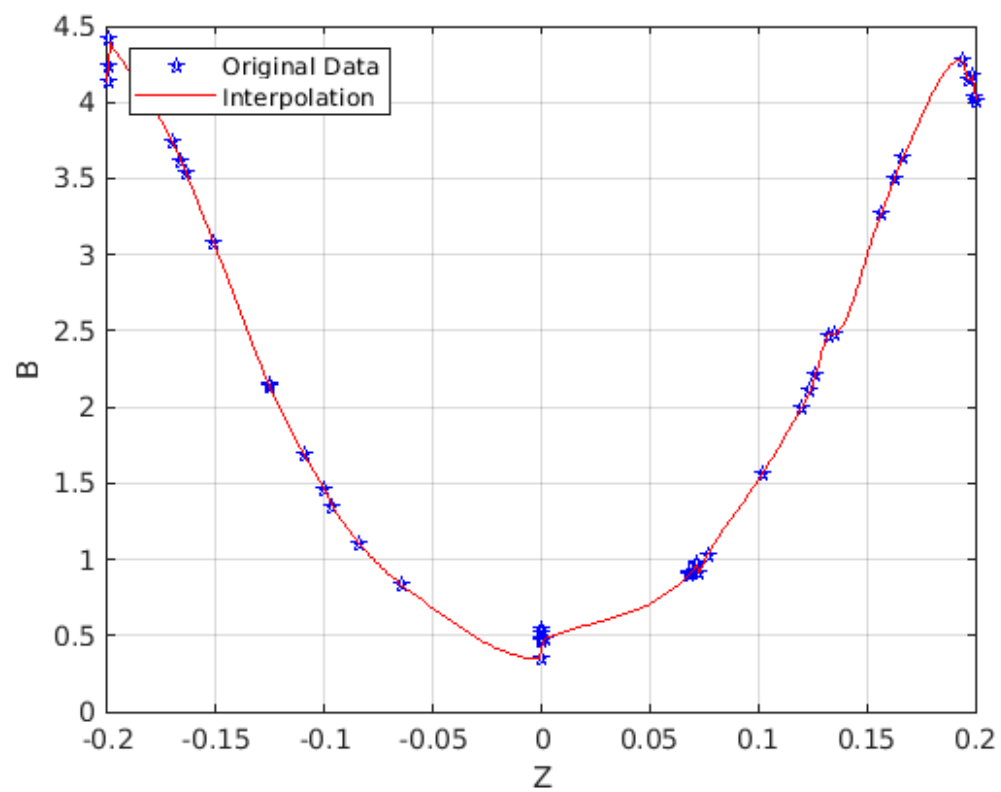
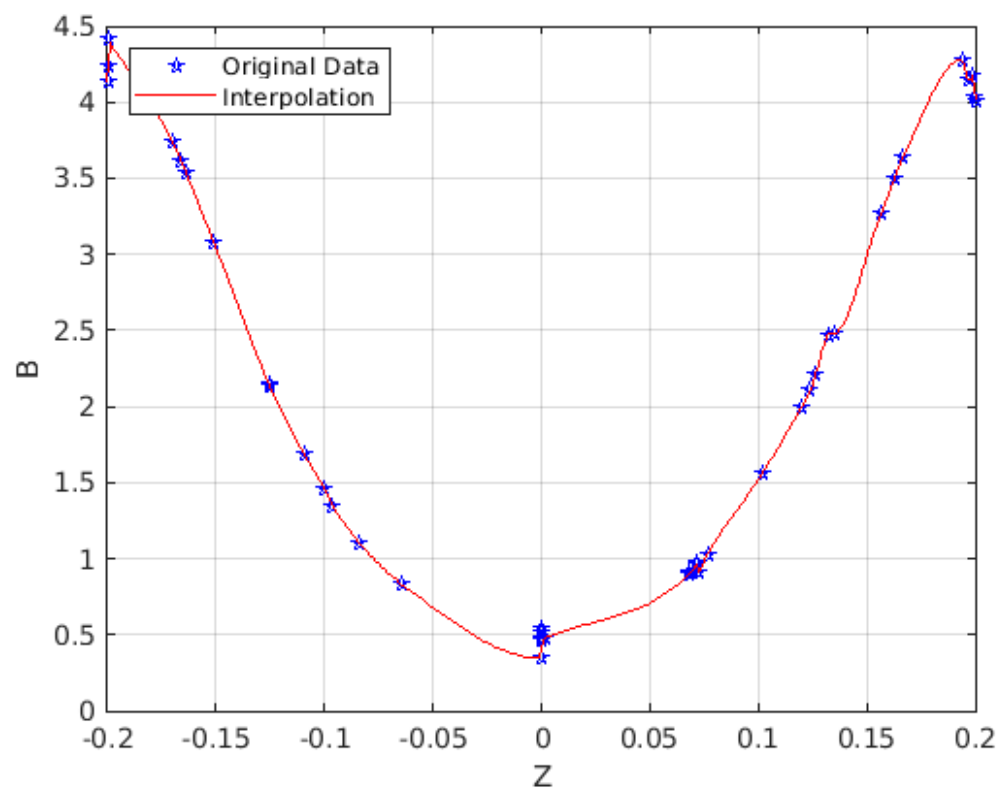
```

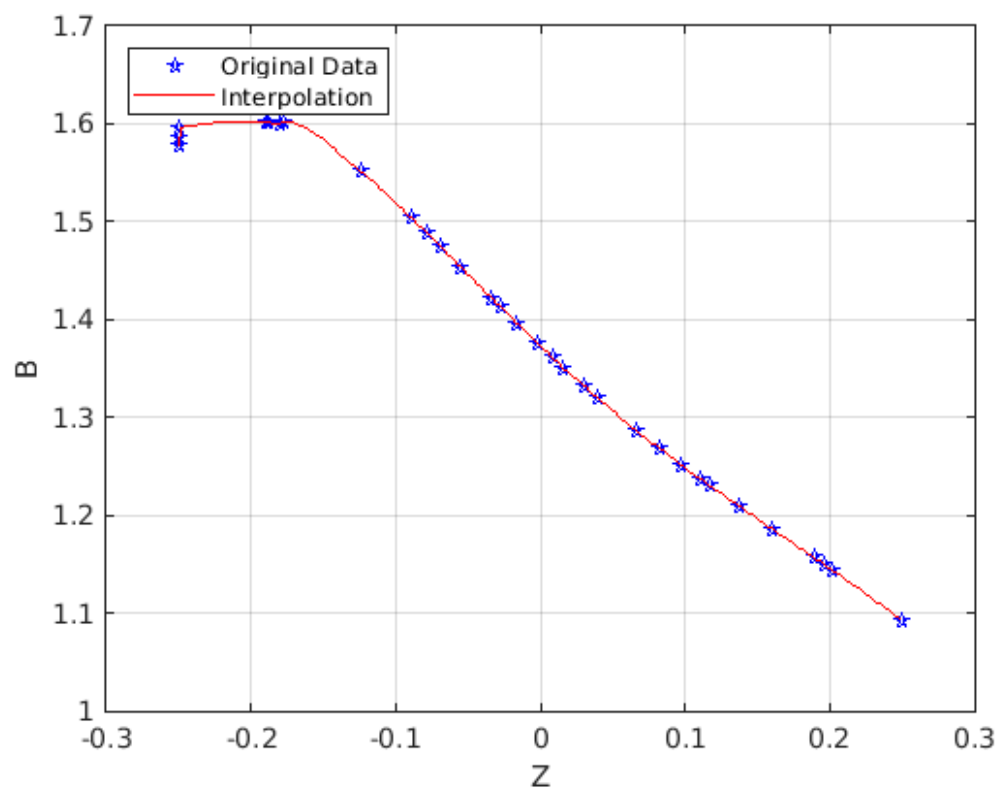
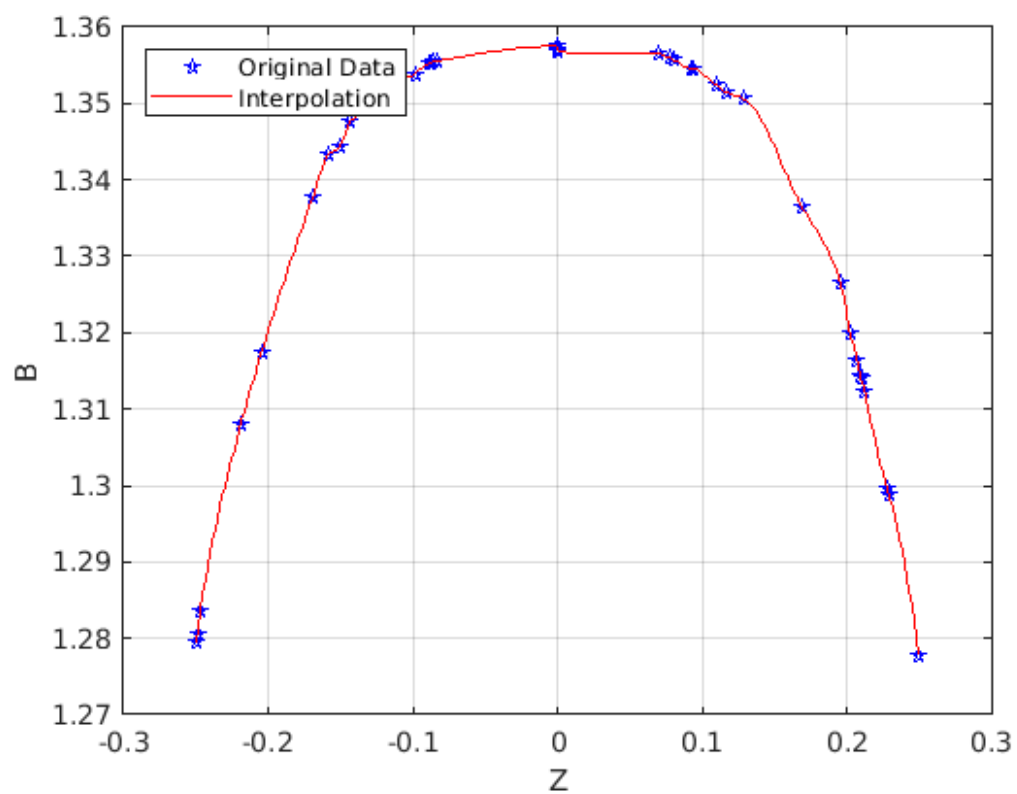
*Warning: INTERP1(...,'CUBIC') will change in a future release. Use INTERP1(...,'PCHIP') instead.*

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