ESEIAAT
Sistemes de Propulsió d'Aeronaus

Parametrització d'un motor Jet

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May 8, 2018

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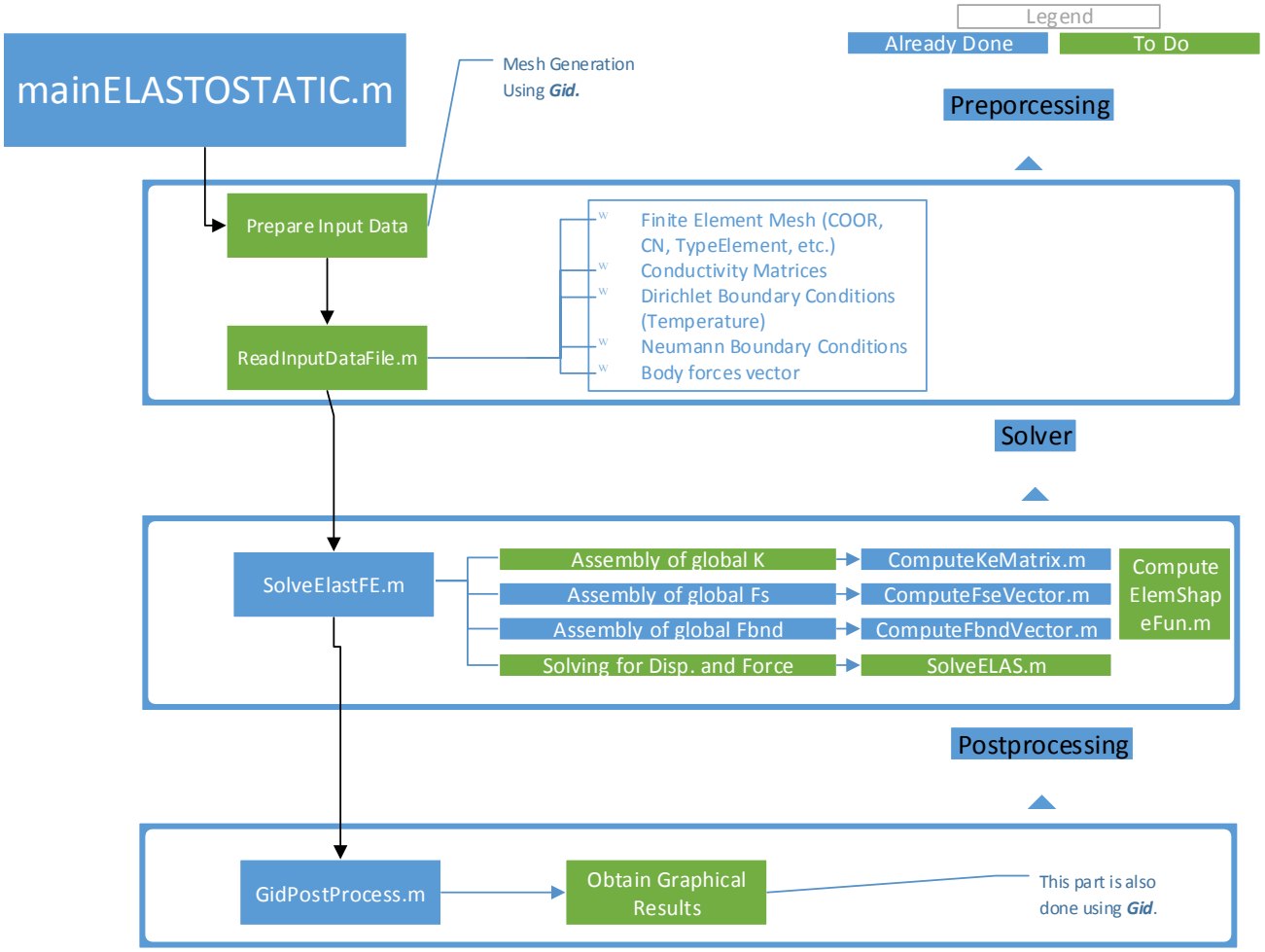

Figure 1: Sample Caption

Numbered equation:

$$K^e = \sum_{g=1}^{m} w_g (J^e B^{e^T} C B^e)_{\xi=\xi_g} \tag{1}$$

In line equation: final Global stiffness matrix K dimensions will be $n_{sd}n_{pt} \times n_{sd}n_{pt}$.

Sample Listing:

Listing 1: ComputeK.m

```
clc;
clear all;
close all;
plot1=[0 0
1 -0.00087300001
2 -0.0024590001];

plot100=[0 0
0.2 -0.000239
```

```
0.40000001 -0.00080500002
0.60000002 -0.001642
0.80000001 -0.0026809999
1 -0.0038689999
1.2 -0.0051589999
1.4 -0.006513
1.6 -0.0079009999
1.8 -0.0093019996
2 -0.010703];

plot900=[0 0
0.133333 -0.000137
0.26666701 -0.00043700001
0.40000001 -0.00089600001
0.533333 -0.001482
0.66666698 -0.002177
0.80000001 -0.002961
0.93333298 -0.003817
1.0666699 -0.0047280001
1.2 -0.005682
1.33333 -0.0066669998
1.46667 -0.0076720002
1.6 -0.008688
1.73333 -0.0097110001
1.86667 -0.010734
2 -0.011756];

plot4=[0 0
0.1 -9.4000003e-005
0.2 -0.00028099999
0.30000001 -0.00056999997
0.40000001 -0.00094400003
0.5 -0.001392
0.60000002 -0.001907
0.69999999 -0.002478
0.80000001 -0.0030990001
0.89999998 -0.003762
1 -0.0044590002
1.1 -0.0051850001
1.2 -0.0059329998
1.3 -0.006699
1.4 -0.0074780001
1.5 -0.0082660001
1.6 -0.0090589998
1.7 -0.0098559996
1.8 -0.010654
1.9 -0.011451
2 -0.012247];

figure
hold on
plot(plot1(:,1),plot1(:,2),'-.g',...
    'LineWidth',2)
plot(plot100(:,1),plot100(:,2),'--k',...
    'LineWidth',2)
plot(plot900(:,1),plot900(:,2),'-.r',...
    'LineWidth',2)
plot(plot4(:,1),plot4(:,2),'--b',...
    'LineWidth',2)
axis([0 2 -0.02 0.02])
```

```
70 xlabel('BEM x axis',...
71 'FontSize',12,...
72 'FontName','Helvetica')
73
74 ylabel('nodal y-displacement',...
75 'FontSize',12,...
76 'FontName','Helvetica')
77
78 legend('MESH1','MESH2','MESH3','MESH4',...
79 'FontUnits','points',...
80 'interpreter','normal',...
81 'FontSize',14,...
82 'FontName','Helvetica',...
83 'Location','NorthEast')
84
85
86 hold off
87 print -depsc2 myplot.eps
88 % legend('900 elements','100 elements','1 element')
```

2 Descripició del/s motor/s

Sample Figure

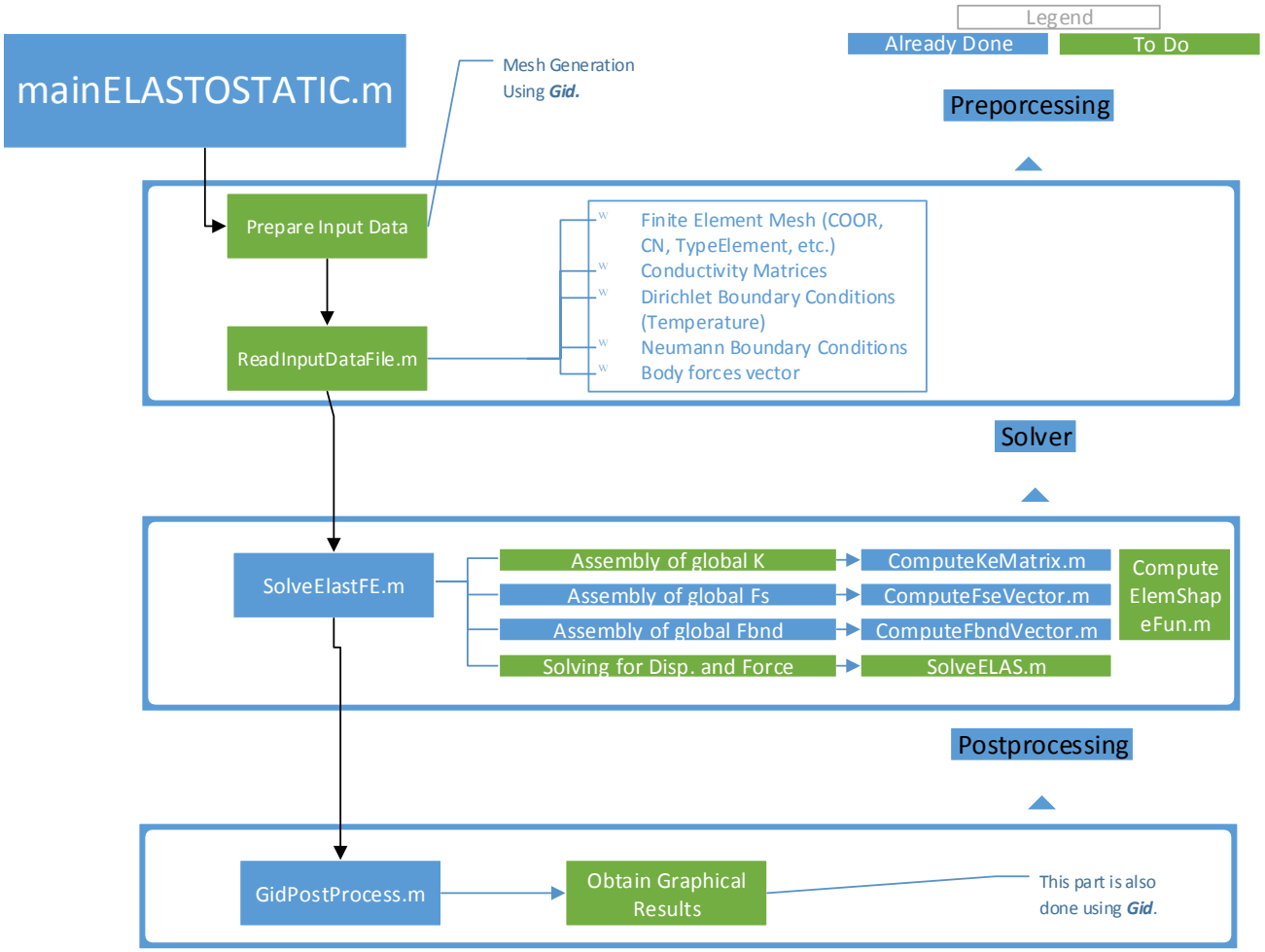

Figure 2: Sample Caption

Numbered equation:

$$K^e = \sum_{g=1}^{m} w_g (J^e B^{e^T} C B^e)_{\xi=\xi_g} \tag{2}$$

In line equation: final Global stiffness matrix K dimensions will be $n_{sd}n_{pt} \times n_{sd}n_{pt}$.

Sample Listing:

Listing 2: ComputeK.m

```
clc;
clear all;
close all;
plot1=[0 0
1 -0.00087300001
2 -0.0024590001];

plot100=[0 0
0.2 -0.000239
0.40000001 -0.00080500002
0.60000002 -0.001642
0.80000001 -0.0026809999
1 -0.0038689999
```

```
1.2 -0.0051589999
1.4 -0.006513
1.6 -0.0079009999
1.8 -0.0093019996
2 -0.010703];

plot900=[0 0
0.133333 -0.000137
0.26666701 -0.00043700001
0.40000001 -0.00089600001
0.533333 -0.001482
0.66666698 -0.002177
0.80000001 -0.002961
0.93333298 -0.003817
1.0666699 -0.0047280001
1.2 -0.005682
1.33333 -0.0066669998
1.46667 -0.0076720002
1.6 -0.008688
1.73333 -0.0097110001
1.86667 -0.010734
2 -0.011756];

plot4=[0 0
0.1 -9.4000003e-005
0.2 -0.00028099999
0.30000001 -0.00056999997
0.40000001 -0.00094400003
0.5 -0.001392
0.60000002 -0.001907
0.69999999 -0.002478
0.80000001 -0.0030990001
0.89999998 -0.003762
1 -0.0044590002
1.1 -0.0051850001
1.2 -0.0059329998
1.3 -0.006699
1.4 -0.0074780001
1.5 -0.0082660001
1.6 -0.0090589998
1.7 -0.0098559996
1.8 -0.010654
1.9 -0.011451
2 -0.012247];

figure
hold on
plot(plot1(:,1),plot1(:,2),'-.g',...
    'LineWidth',2)
plot(plot100(:,1),plot100(:,2),'--k',...
    'LineWidth',2)
plot(plot900(:,1),plot900(:,2),'-.r',...
    'LineWidth',2)
plot(plot4(:,1),plot4(:,2),'--b',...
    'LineWidth',2)
axis([0 2 -0.02 0.02])
xlabel('BEM x axis',...
'FontSize',12,...
'FontName','Helvetica')

```

```
ylabel('nodal y-displacement',...
'FontSize',12,...
'FontName','Helvetica')

legend('MESH1','MESH2','MESH3','MESH4',...
'FontUnits','points',...
'interpreter','normal',...
'FontSize',14,...
'FontName','Helvetica',...
'Location','NorthEast')


hold off
print -depsc2 myplot.eps
% legend('900 elements','100 elements','1 element')
```

3 Càlcul paramètric del motor i optimització per a les condicions de disseny

Sample Figure

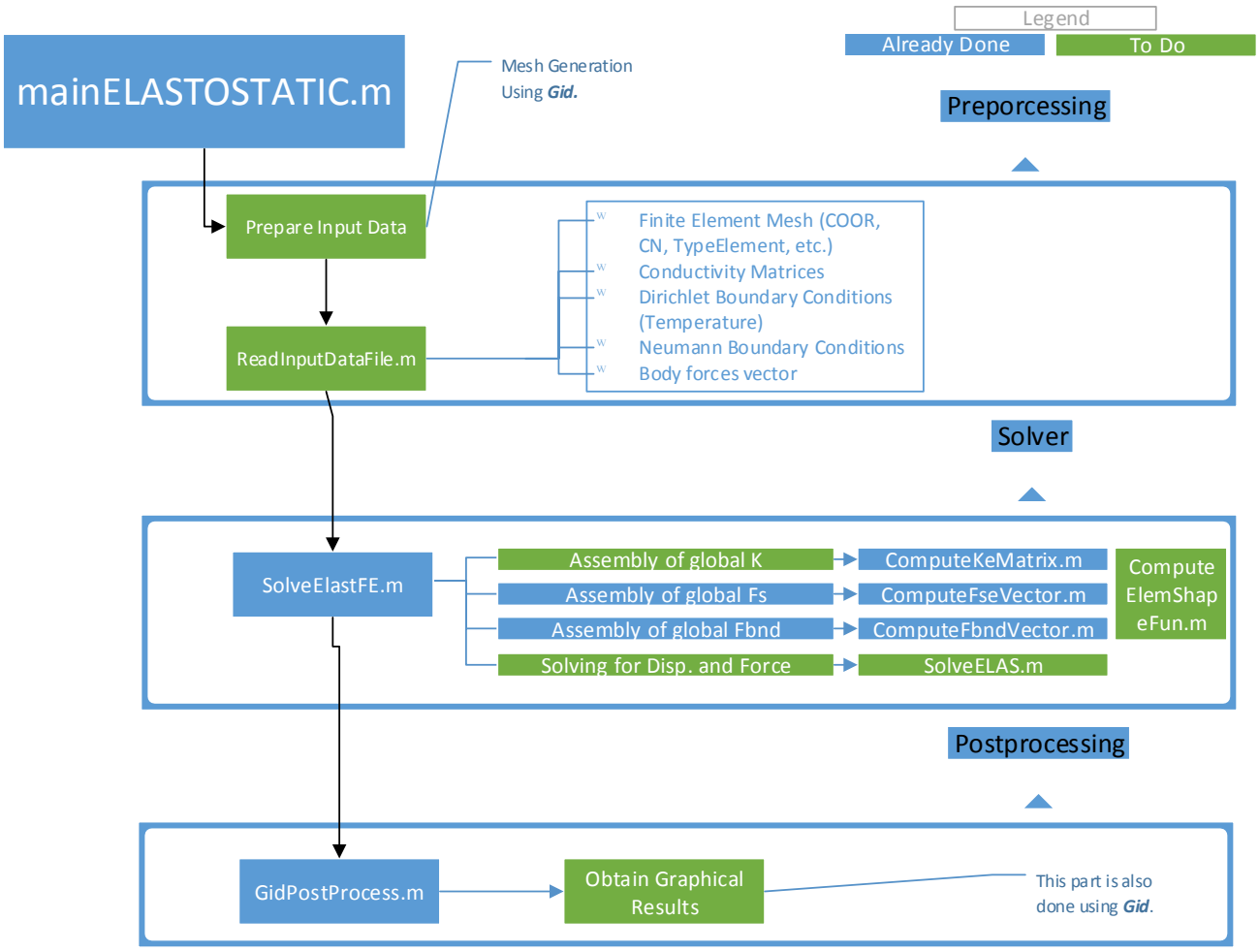

Figure 3: Sample Caption

Numbered equation:

$$K^e = \sum_{g=1}^{m} w_g (J^e B^{e^T} C B^e)_{\xi=\xi_g} \tag{3}$$

In line equation: final Global stiffness matrix K dimensions will be $n_{sd}n_{pt} \times n_{sd}n_{pt}$.

Sample Listing:

Listing 3: ComputeK.m

```
clc;
clear all;
close all;
plot1=[0 0
1 -0.00087300001
2 -0.0024590001];

plot100=[0 0
0.2 -0.000239
0.40000001 -0.00080500002
0.60000002 -0.001642
0.80000001 -0.0026809999
1 -0.0038689999
1.2 -0.0051589999
1.4 -0.006513
1.6 -0.0079009999
1.8 -0.0093019996
2 -0.010703];

plot900=[0 0
0.133333 -0.000137
0.26666701 -0.00043700001
0.40000001 -0.00089600001
0.533333 -0.001482
0.66666698 -0.002177
0.80000001 -0.002961
0.93333298 -0.003817
1.0666699 -0.0047280001
1.2 -0.005682
1.33333 -0.0066669998
1.46667 -0.0076720002
1.6 -0.008688
1.73333 -0.0097110001
1.86667 -0.010734
2 -0.011756];

plot4=[0 0
0.1 -9.4000003e-005
0.2 -0.00028099999
0.30000001 -0.00056999997
0.40000001 -0.00094400003
0.5 -0.001392
0.60000002 -0.001907
0.69999999 -0.002478
0.80000001 -0.0030990001
0.89999998 -0.003762
1 -0.0044590002
1.1 -0.0051850001
1.2 -0.0059329998
1.3 -0.006699
```

```
1.4 -0.0074780001
1.5 -0.0082660001
1.6 -0.0090589998
1.7 -0.0098559996
1.8 -0.010654
1.9 -0.011451
2 -0.012247];

figure
hold on
plot(plot1(:,1),plot1(:,2),'-.g',...
    'LineWidth',2)
plot(plot100(:,1),plot100(:,2),'--k',...
    'LineWidth',2)
plot(plot900(:,1),plot900(:,2),'-.r',...
    'LineWidth',2)
plot(plot4(:,1),plot4(:,2),'--b',...
    'LineWidth',2)
axis([0 2 -0.02 0.02])
xlabel('BEM x axis',...
'FontSize',12,...
'FontName','Helvetica')

ylabel('nodal y-displacement',...
'FontSize',12,...
'FontName','Helvetica')

legend('MESH1','MESH2','MESH3','MESH4',...
'FontUnits','points',...
'interpreter','normal',...
'FontSize',14,...
'FontName','Helvetica',...
'Location','NorthEast')


hold off
print -depsc2 myplot.eps
% legend('900 elements','100 elements','1 element')
```

4 Càlcul i elecció de l'hèlix

Sample Figure

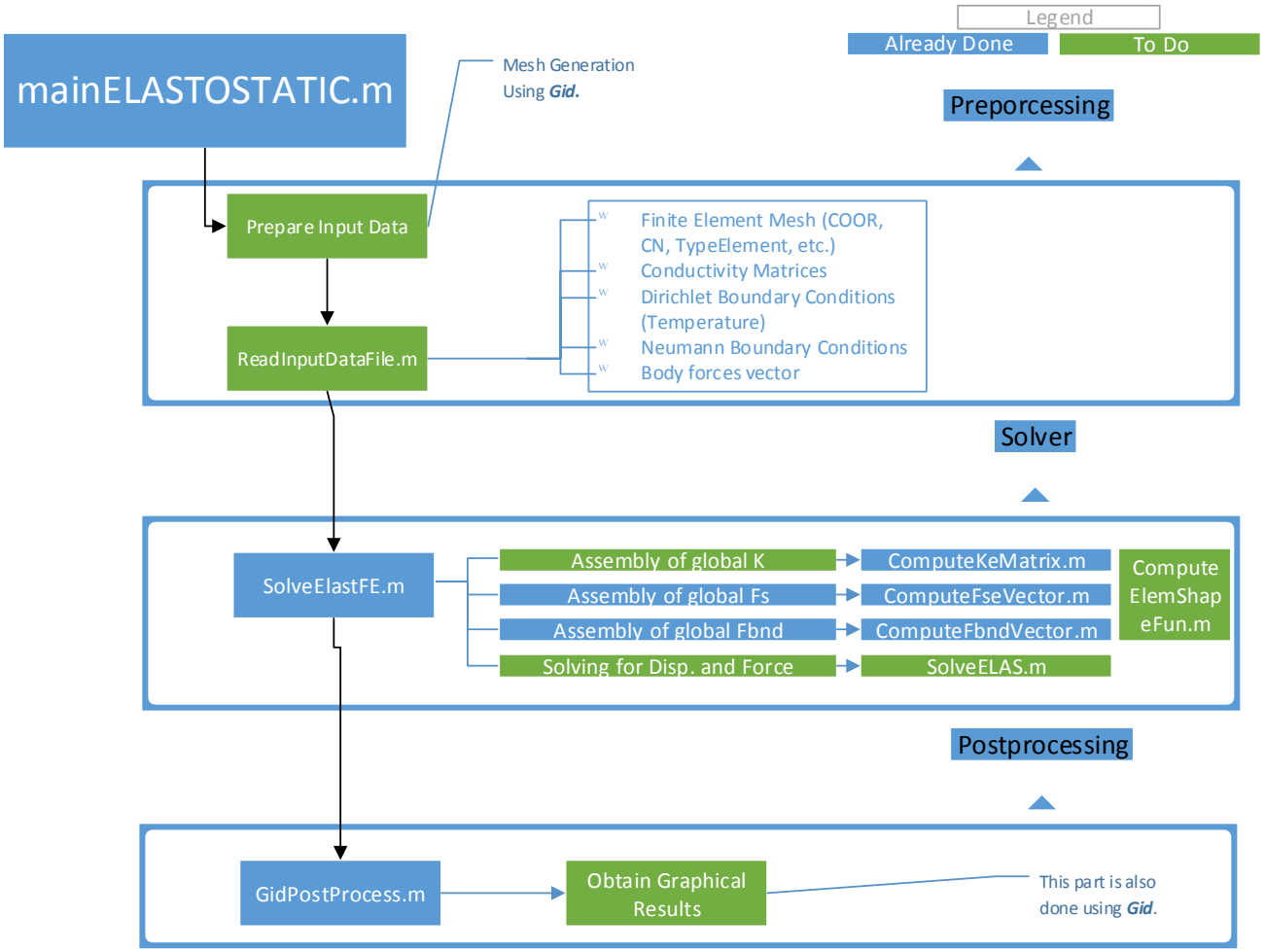

Figure 4: Sample Caption

Numbered equation:

$$K^e = \sum_{g=1}^{m} w_g (J^e B^{e^T} C B^e)_{\xi=\xi_g} \tag{4}$$

In line equation: final Global stiffness matrix K dimensions will be $n_{sd}n_{pt} \times n_{sd}n_{pt}$.

Sample Listing:

Listing 4: ComputeK.m

```
clc;
clear all;
close all;
plot1=[0 0
1 -0.00087300001
2 -0.0024590001];

plot100=[0 0
0.2 -0.000239
0.40000001 -0.00080500002
0.60000002 -0.001642
0.80000001 -0.0026809999
1 -0.0038689999
```

```
1.2 -0.0051589999
1.4 -0.006513
1.6 -0.0079009999
1.8 -0.0093019996
2 -0.010703];

plot900=[0 0
0.133333 -0.000137
0.26666701 -0.00043700001
0.40000001 -0.00089600001
0.533333 -0.001482
0.66666698 -0.002177
0.80000001 -0.002961
0.93333298 -0.003817
1.0666699 -0.0047280001
1.2 -0.005682
1.33333 -0.0066669998
1.46667 -0.0076720002
1.6 -0.008688
1.73333 -0.0097110001
1.86667 -0.010734
2 -0.011756];

plot4=[0 0
0.1 -9.4000003e-005
0.2 -0.00028099999
0.30000001 -0.00056999997
0.40000001 -0.00094400003
0.5 -0.001392
0.60000002 -0.001907
0.69999999 -0.002478
0.80000001 -0.0030990001
0.89999998 -0.003762
1 -0.0044590002
1.1 -0.0051850001
1.2 -0.0059329998
1.3 -0.006699
1.4 -0.0074780001
1.5 -0.0082660001
1.6 -0.0090589998
1.7 -0.0098559996
1.8 -0.010654
1.9 -0.011451
2 -0.012247];

figure
hold on
plot(plot1(:,1),plot1(:,2),'-.g',...
    'LineWidth',2)
plot(plot100(:,1),plot100(:,2),'--k',...
    'LineWidth',2)
plot(plot900(:,1),plot900(:,2),'-.r',...
    'LineWidth',2)
plot(plot4(:,1),plot4(:,2),'--b',...
    'LineWidth',2)
axis([0 2 -0.02 0.02])
xlabel('BEM x axis',...
'FontSize',12,...
'FontName','Helvetica')

```

```
ylabel('nodal y-displacement',...
'FontSize',12,...
'FontName','Helvetica')

legend('MESH1','MESH2','MESH3','MESH4',...
'FontUnits','points',...
'interpreter','normal',...
'FontSize',14,...
'FontName','Helvetica',...
'Location','NorthEast')


hold off
print -depsc2 myplot.eps
% legend('900 elements','100 elements','1 element')
```

5 Càlcul i elecció de postcombustor

Sample Figure

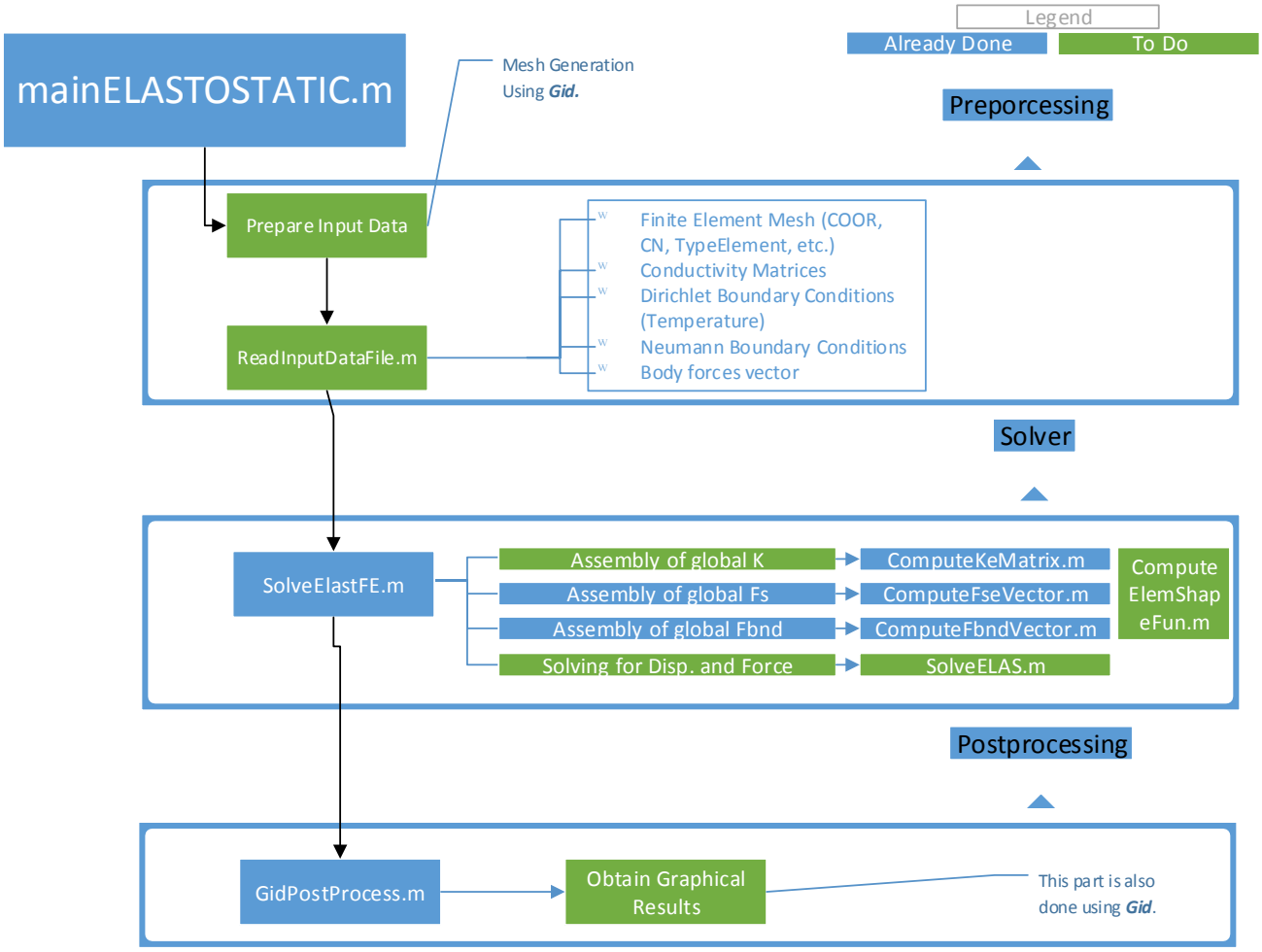

Figure 5: Sample Caption

Numbered equation:

$$K^e = \sum_{g=1}^{m} w_g (J^e {B^e}^T C B^e)_{\xi=\xi_g} \tag{5}$$

In line equation: final Global stiffness matrix K dimensions will be $n_{sd}n_{pt} \times n_{sd}n_{pt}$.

Sample Listing:

Listing 5: ComputeK.m

```
clc;
clear all;
close all;
plot1=[0 0
1 -0.00087300001
2 -0.0024590001];

plot100=[0 0
0.2 -0.000239
0.40000001 -0.00080500002
0.60000002 -0.001642
0.80000001 -0.0026809999
1 -0.0038689999
1.2 -0.0051589999
1.4 -0.006513
1.6 -0.0079009999
1.8 -0.0093019996
2 -0.010703];

plot900=[0 0
0.133333 -0.000137
0.26666701 -0.00043700001
0.40000001 -0.00089600001
0.533333 -0.001482
0.66666698 -0.002177
0.80000001 -0.002961
0.93333298 -0.003817
1.0666699 -0.0047280001
1.2 -0.005682
1.33333 -0.0066669998
1.46667 -0.0076720002
1.6 -0.008688
1.73333 -0.0097110001
1.86667 -0.010734
2 -0.011756];

plot4=[0 0
0.1 -9.4000003e-005
0.2 -0.00028099999
0.30000001 -0.00056999997
0.40000001 -0.00094400003
0.5 -0.001392
0.60000002 -0.001907
0.69999999 -0.002478
0.80000001 -0.0030990001
0.89999998 -0.003762
1 -0.0044590002
1.1 -0.0051850001
1.2 -0.0059329998
1.3 -0.006699
```

```
1.4 -0.0074780001
1.5 -0.0082660001
1.6 -0.0090589998
1.7 -0.0098559996
1.8 -0.010654
1.9 -0.011451
2 -0.012247];

figure
hold on
plot(plot1(:,1),plot1(:,2),'-.g',...
    'LineWidth',2)
plot(plot100(:,1),plot100(:,2),'--k',...
    'LineWidth',2)
plot(plot900(:,1),plot900(:,2),'-.r',...
    'LineWidth',2)
plot(plot4(:,1),plot4(:,2),'--b',...
    'LineWidth',2)
axis([0 2 -0.02 0.02])
xlabel('BEM x axis',...
'FontSize',12,...
'FontName','Helvetica')

ylabel('nodal y-displacement',...
'FontSize',12,...
'FontName','Helvetica')

legend('MESH1','MESH2','MESH3','MESH4',...
'FontUnits','points',...
'interpreter','normal',...
'FontSize',14,...
'FontName','Helvetica',...
'Location','NorthEast')


hold off
print -depsc2 myplot.eps
% legend('900 elements','100 elements','1 element')
```

6 Càlcul de consum d'aire i fuel en vol

Sample Figure

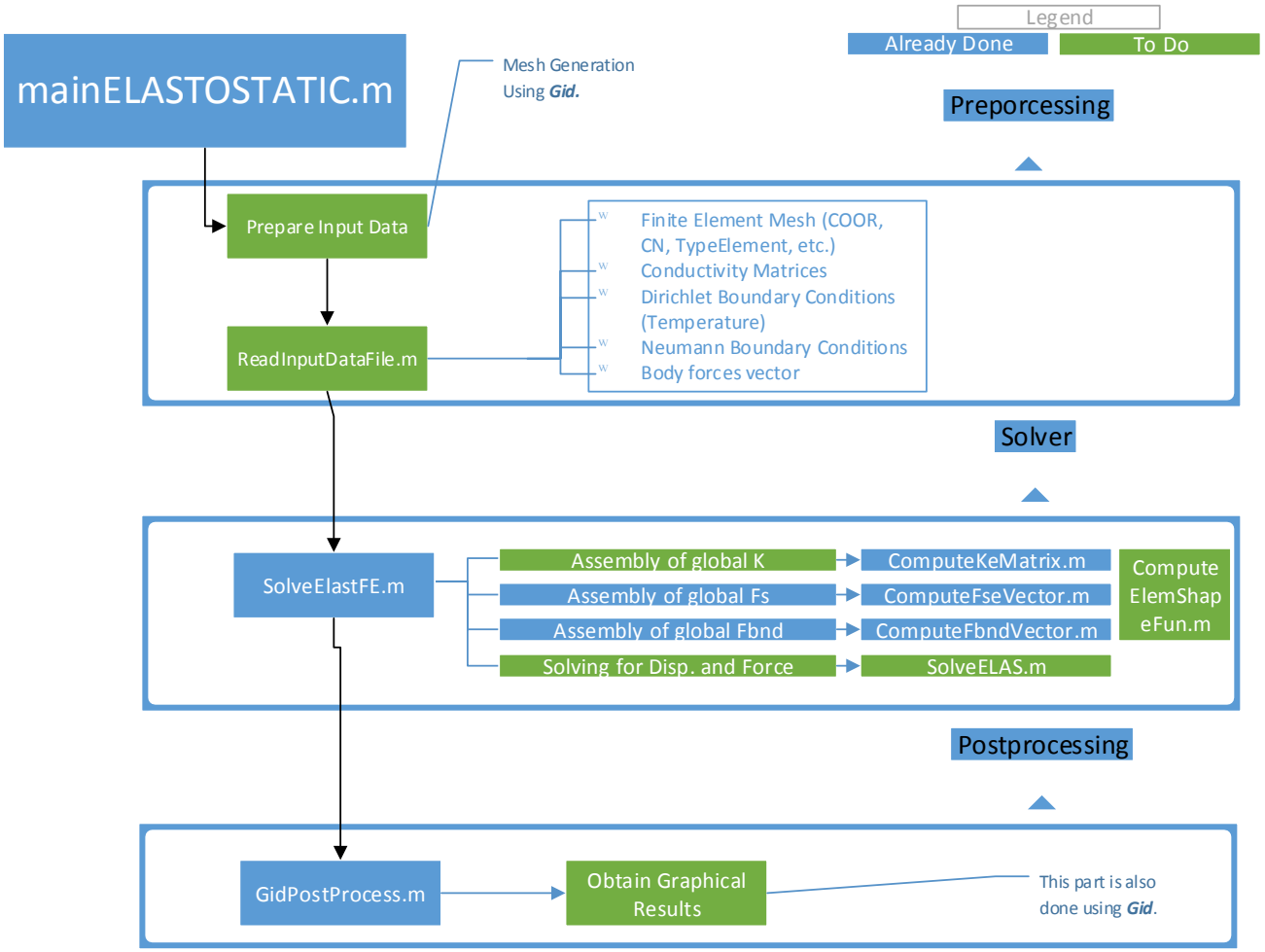

Figure 6: Sample Caption

Numbered equation:

$$K^e = \sum_{g=1}^{m} w_g (J^e B^{e^T} C B^e)_{\xi=\xi_g} \tag{6}$$

In line equation: final Global stiffness matrix K dimensions will be $n_{sd}n_{pt} \times n_{sd}n_{pt}$.

Sample Listing:

Listing 6: ComputeK.m

```
clc;
clear all;
close all;
plot1=[0 0
1 -0.00087300001
2 -0.0024590001];

plot100=[0 0
0.2 -0.000239
0.40000001 -0.00080500002
0.60000002 -0.001642
0.80000001 -0.0026809999
1 -0.0038689999
```

```
1.2 -0.0051589999
1.4 -0.006513
1.6 -0.0079009999
1.8 -0.0093019996
2 -0.010703];

plot900=[0 0
0.133333 -0.000137
0.26666701 -0.00043700001
0.40000001 -0.00089600001
0.533333 -0.001482
0.66666698 -0.002177
0.80000001 -0.002961
0.93333298 -0.003817
1.0666699 -0.0047280001
1.2 -0.005682
1.33333 -0.0066669998
1.46667 -0.0076720002
1.6 -0.008688
1.73333 -0.0097110001
1.86667 -0.010734
2 -0.011756];

plot4=[0 0
0.1 -9.4000003e-005
0.2 -0.00028099999
0.30000001 -0.00056999997
0.40000001 -0.00094400003
0.5 -0.001392
0.60000002 -0.001907
0.69999999 -0.002478
0.80000001 -0.0030990001
0.89999998 -0.003762
1 -0.0044590002
1.1 -0.0051850001
1.2 -0.0059329998
1.3 -0.006699
1.4 -0.0074780001
1.5 -0.0082660001
1.6 -0.0090589998
1.7 -0.0098559996
1.8 -0.010654
1.9 -0.011451
2 -0.012247];

figure
hold on
plot(plot1(:,1),plot1(:,2),'-.g',...
    'LineWidth',2)
plot(plot100(:,1),plot100(:,2),'--k',...
    'LineWidth',2)
plot(plot900(:,1),plot900(:,2),'-.r',...
    'LineWidth',2)
plot(plot4(:,1),plot4(:,2),'--b',...
    'LineWidth',2)
axis([0 2 -0.02 0.02])
xlabel('BEM x axis',...
'FontSize',12,...
'FontName','Helvetica')

```

```
ylabel('nodal y-displacement',...
'FontSize',12,...
'FontName','Helvetica')

legend('MESH1','MESH2','MESH3','MESH4',...
'FontUnits','points',...
'interpreter','normal',...
'FontSize',14,...
'FontName','Helvetica',...
'Location','NorthEast')


hold off
print -depsc2 myplot.eps
% legend('900 elements','100 elements','1 element')
```

7 Càlcul de dimensionat d'àrees

Sample Figure

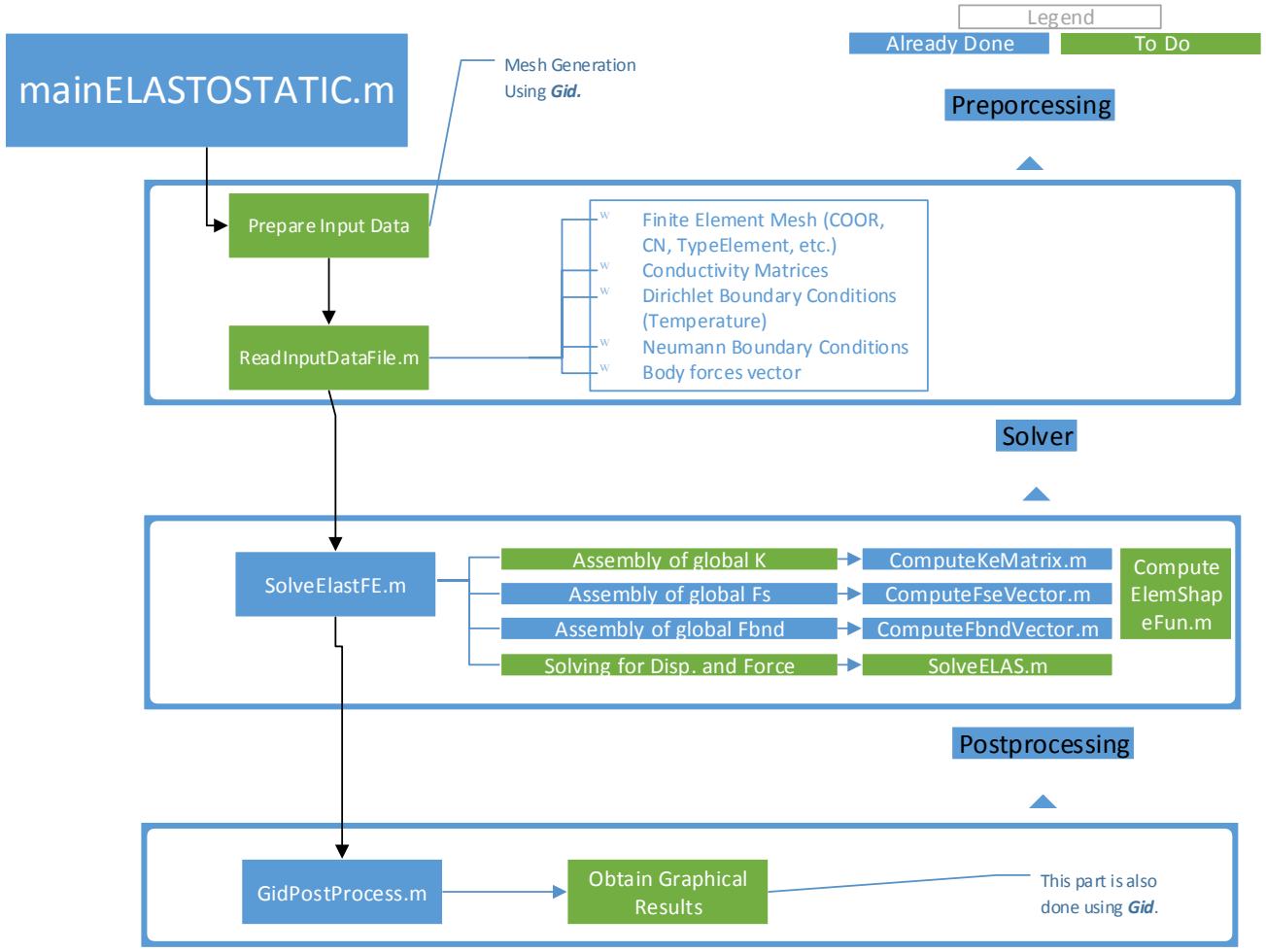

Figure 7: Sample Caption

Numbered equation:

$$K^e = \sum_{g=1}^{m} w_g (J^e B^{e^T} C B^e)_{\xi=\xi_g} \tag{7}$$

In line equation: final Global stiffness matrix K dimensions will be $n_{sd}n_{pt} \times n_{sd}n_{pt}$.

Sample Listing:

Listing 7: ComputeK.m

```
clc;
clear all;
close all;
plot1=[0 0
1 -0.00087300001
2 -0.0024590001];

plot100=[0 0
0.2 -0.000239
0.40000001 -0.00080500002
0.60000002 -0.001642
0.80000001 -0.0026809999
1 -0.0038689999
1.2 -0.0051589999
1.4 -0.006513
1.6 -0.0079009999
1.8 -0.0093019996
2 -0.010703];

plot900=[0 0
0.133333 -0.000137
0.26666701 -0.00043700001
0.40000001 -0.00089600001
0.533333 -0.001482
0.66666698 -0.002177
0.80000001 -0.002961
0.93333298 -0.003817
1.0666699 -0.0047280001
1.2 -0.005682
1.33333 -0.0066669998
1.46667 -0.0076720002
1.6 -0.008688
1.73333 -0.0097110001
1.86667 -0.010734
2 -0.011756];

plot4=[0 0
0.1 -9.4000003e-005
0.2 -0.00028099999
0.30000001 -0.00056999997
0.40000001 -0.00094400003
0.5 -0.001392
0.60000002 -0.001907
0.69999999 -0.002478
0.80000001 -0.0030990001
0.89999998 -0.003762
1 -0.0044590002
1.1 -0.0051850001
1.2 -0.0059329998
1.3 -0.006699
```

```
1.4 -0.0074780001
1.5 -0.0082660001
1.6 -0.0090589998
1.7 -0.0098559996
1.8 -0.010654
1.9 -0.011451
2 -0.012247];

figure
hold on
plot(plot1(:,1),plot1(:,2),'-.g',...
    'LineWidth',2)
plot(plot100(:,1),plot100(:,2),'--k',...
    'LineWidth',2)
plot(plot900(:,1),plot900(:,2),'-.r',...
    'LineWidth',2)
plot(plot4(:,1),plot4(:,2),'--b',...
    'LineWidth',2)
axis([0 2 -0.02 0.02])
xlabel('BEM x axis',...
'FontSize',12,...
'FontName','Helvetica')

ylabel('nodal y-displacement',...
'FontSize',12,...
'FontName','Helvetica')

legend('MESH1','MESH2','MESH3','MESH4',...
'FontUnits','points',...
'interpreter','normal',...
'FontSize',14,...
'FontName','Helvetica',...
'Location','NorthEast')


hold off
print -depsc2 myplot.eps
% legend('900 elements','100 elements','1 element')
```

References