strain_gtol

Computes local strains for a unidirectional lamina

Inputs

strain_glo - [epsx;epsy;epsxy]
- **epsx** - Global longitudinal strain
- **epsy** - Global transverse strain
- **epsxy** - Global in-plane strain

angle - Angle of ply in degrees

Outputs

strain_loc - [eps1;eps2;eps12]
- **eps1 -** Local longitudinal strain
- **eps2 -** Local transverse strain
- **eps12 -** Local in-plane strain

Calling the Function

```
[strain_loc]=strain_gtol(strain_glo,angle)
```

Testing File

Click here to see a testing file for using the function strain_gtol

Example

Inputs:

```
Longitudinal Global Strain: 1.2
Transverse Global Strain: 3.6
In-Plane Global Strain: 0.023
Angle of Lamina: 60
```

Outputs:

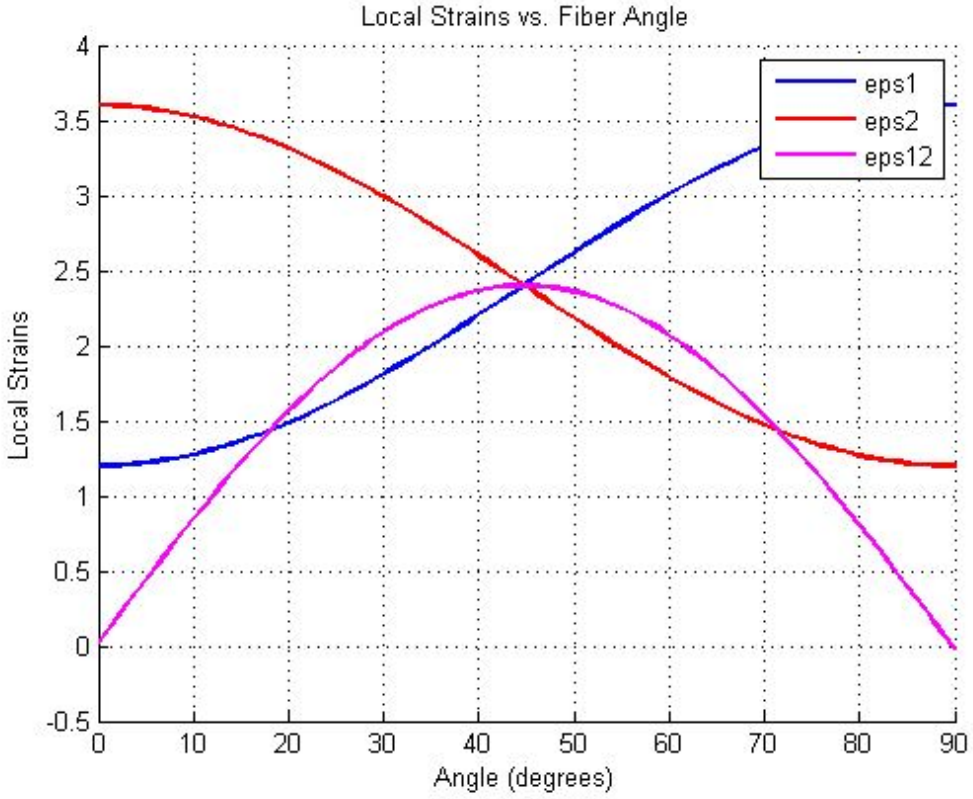
```
    Local Strains for Lamina
_____________________________

 eps1   | 3.00996
 eps2   | 1.79004
 eps12  | 2.06696
```

Table:

Local Strains for Lamina

angle	eps1	eps2	eps12
0	1.200000E+00	3.600000E+00	2.300000E-02
5	1.220228E+00	3.579772E+00	4.394062E-01
10	1.276302E+00	3.523698E+00	8.424613E-01
15	1.366520E+00	3.433480E+00	1.219919E+00
20	1.488139E+00	3.311861E+00	1.560309E+00
25	1.637464E+00	3.162536E+00	1.853291E+00
30	1.809959E+00	2.990041E+00	2.089961E+00
35	2.000382E+00	2.799618E+00	2.263129E+00
40	2.202947E+00	2.597053E+00	2.367533E+00
45	2.411500E+00	2.388500E+00	2.400000E+00
50	2.619703E+00	2.180297E+00	2.359545E+00
55	2.821231E+00	1.978769E+00	2.247396E+00
60	3.009959E+00	1.790041E+00	2.066961E+00
65	3.180155E+00	1.619845E+00	1.823723E+00
70	3.326645E+00	1.473355E+00	1.525071E+00
75	3.444980E+00	1.355020E+00	1.180081E+00
80	3.531564E+00	1.268436E+00	7.992354E-01
85	3.583766E+00	1.216234E+00	3.941050E-01
90	3.600000E+00	1.200000E+00	-2.300000E-02

Graph:



Description

Outputs local strain of a unidirectional lamina in matrix form:
[eps1;eps2;eps12]