CE 598 – Peridynamics
October 20, 2015
Assignment #8
Due in One Week

Read Chapters 6 and 7 in "Practical Peridynamics".

Do problems:

7.3
7.5
7.6
7.8
7.9
7.11 (note that there is a typo in the problem statement: *s* should be *L*)

Computer problem: In the accompanying MatLab file *stressStrainExample.m*, complete the function *computeStressStrain* that computes the three-dimensional stress and strain at each lattice particle, assuming small-deformation homogeneous strain conditions.

Using *stressStrainExample*, apply the spatially-homogeneous strain field: $\begin{Bmatrix} \epsilon_{XX} \\ \epsilon_{XY} \\ \gamma_{XY} \end{Bmatrix} = \begin{Bmatrix} 0.001 \\ 0 \\ 0 \end{Bmatrix}$. Assuming plane-stress conditions, demonstrate that *stressStrain* outputs the correct strains and stresses for all particles, for lattice rotations of 0^{o}, 10^{o}, 15^{o}, and 30^{o}.

Provide a hard copy of the function *computeStressStrain*, along with a discussion of the results.