TAM 554- Plasticity Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Homework #1 Due September 18, 2017

The stress-strain relationship proposed by Bodner is given below:





Please determine the stress-strain curve to a strain of 0.1 using the constants given below. The strain rate for the simulations is to be 10-4 1/sec. Comment on your results.

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 1070 Steel Cu( copper) Cu

 (R.T) (R.T) (550°C)

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Do(1/sec) 104 104 104

n 8.2 7.5 3.9

Ko (MPa) 552 63 16

K1 (MPa) 1260 250 250

m (MPa -1) 0.06 0.13 0.13

E (MPa) 200,000 120,000 100,000

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