

Take Home Exam02B1: Ideal Yield Stress and Crystallography

Assigned: Sunday 02/15/2022

Due (as pdf by email) 02/18/2022 (within three working days)

You may submit your answers in one of two ways:

1) For typed answers: as a .docx file (as is) or converted into a pdf file. (DO NOT SEND GOOGLE DOC)

For handwritten answers: Please scan as images, and group together into one pdf file. Or you may hand them manually to my office (ECME-212)

HW 02B1.1

Explain **in a narrative** (in 50 words or less) why the ideal yield stress is given by

$$\sigma_s^{ideal} = 0.25 \frac{b}{d} G$$

where G is the shear modulus, b is the lattice translation vector, and d is the distance between the slip planes.

HW 02B1.2

In a cubic unit cell draw any one plane from the set {021}

HW 02B1.3

How many independent slip systems are there in

{111} and <100>