University of California at Berkeley
College of Engineering
Mechanical Engineering Department

ME118/ME218N, Spring 2024 **Liwei Lin**

Lab #1
Due : One week after the last group's lab time

Lab 1 (Direct-write Laser Conversion of Graphene)

We will use laser to convert polymer into "porous graphene", and estimate the resistivity of the resulting material. Please read through paper #2 carefully as lab #1 is based on the same process. TA will prepare the polymer samples and provide some guidelines for the operation of the laser setup.

(1) Go to 1113 Etcheverry at the time you sign up and take a photo of the specimen you are assigned before the synthesis process. You should ask TA on the specific dimensions, thickness … of the specimen.
(2) Under the guidance of TA, please place the sample into the laser setup and set the right parameters similar to paper #2 with a target to synthesize graphene as suggested by TA.
(3) After the synthesis process, please move the sample out of the setup. Please take a photo for the sample after the synthesis process
(4) Measure the IV response of graphene. Bring a USB disc to copy the data, or use your pen to write down the data.
(5) Estimate the resistance of the graphene and if possible, suggest ways to measure the contact resistances.
(6) Write a short (1 page) report about this lab, including photos of the sample and IV response of graphene.
(7) EXTRA POINTS: If you are interested in this lab, you can design and program your own patterns for specific purpose/application.