Anna Ledeczi
Report on Class #4 (10/06/21)
Due on Class #5 (10/08/21)

We began class on Wednesday by discussing creep and relaxation functions. If the two assumptions are met, the creep curve measured in the experiment should be representative of the creep function, which is C(t-t'). The relaxation function measures the stress required to produce a certain strain at t=0 and hold it constant. We then reviewed our answers for the pre-class assignment and determined that in the case of a dash pot, the energy has dissipated into heat and so cannot return to its original position, while the spring returns to its initial position and does not have a net change in energy. We reviewed Maxwell and Kelvin-Voigt solids and discussed the application of the later as a shock absorber on a car's wheels. Finally, we derived the relaxation function in a standard linear solid and discussed its behavior. All strain is initially taken up by the spring μ_2 until the Kelvin-Voigt element begins to strain as well. Eventually, there is no strain in the dash pot, and both springs support the same stress.