

Highlight report: Class 28, December 6th

On Monday we went over Fluid flow. When at rest pressure is simply given as the average stress. It is in motion where it gets more complex. We went over the constitutive relationships of fluids and compared it to those of an elastic solid and found many degrees of similarities like needing a linear tensor operator. We then went over three different cases. An incompressible fluid and its scenarios where there is negligible viscosity, the Navier-Stokes relationship given when writing the stress tensor to be the sum of deviatoric stress and volumetric pressure, and finally went on to derive the correspondence principle where one can relate a viscous fluid to an elastic solid given a proper fourth rank tensor and the correct material properties.