

Webinar

Displacements, deformations and response in systems of particles with strong two dimensional coupling

Debankur Das

TCIS, Hyderabad

Strongly coupled systems are considered to be relatively unremarkable, remaining static or fluctuating placidly about their equilibrium configurations. Most of their properties can be explained using, often trivial, equilibrium response functions. There are some exceptions, however, such as the nucleation and motion of lattice dislocations that signify the local breakdown of order. Deformation behaviour, so important for deciding the eventual use of a material is therefore mostly confined to a study of these defects. Here, we try to investigate the deformation behaviour and response to forces in such systems. First, I will discuss how unusual deformation structures like wrinkles, pleats and ‘ripplocations’ are formed in two dimensional elastic sheets. In the next part, I will discuss the response of an athermal membrane in presence of force dipole. Using the method developed, I will try to characterize the displacement correlations in an actively pinned membrane.

Friday, Feb 5th 2021

11:30 AM