

## 國內教授伊林 ( Lin I ) 國內研究現況介紹

### Micro-dynamics in Dusty Plasma Liquids

#### 綱要:

Microscopically, liquid is a complex strongly coupled nonlinear manybody system driven by stochastic noise. Unlike the intuitive impression of disordered motion, it exhibits many interesting cooperative excitation under the interplay of mutual coupling and stochastic thermal agitation at the kinetic. Unfortunately, it is difficult to construct a microscopic picture for its structure and motion due to the lack of proper tools to monitor the spatio-temporal evolution at the small atomic scale. Dusty plasma liquid can be formed by charging and suspending micro-meter sized dust particles in a low pressure gaseous plasma background. The sub-mm interparticle distance makes it a good platform to mimic and understand the micro-dynamics of the liquid by directly tracking particle position through optical video-microscopy. In this talk, the non-Gaussian dynamics with avalanche type cooperative excitation of fast hopping particles and topological defects, the anomalous behavior of layering transition with slow dynamics in mesoscopic channels, and the response to the external shear stress will be reported.