

## **Direct and Indirect Coulomb interactions at 2D double layer electron systems**

Afif Siddiki

Department of Physics, İstanbul University, İstanbul, Turkey

In this lecture, I will first summarize the experimental realization of double layer structures considering semiconductor based materials. By solving the Poisson equation self-consistently, I will show the influence of direct Coulomb interactions on the electrostatic quantities of the electron liquid. In the next step, the effect of a strong perpendicular magnetic field will be discussed leading to formation of incompressible electron states. Last part will be devoted to the transport properties of the mentioned quantum liquid.