

Exciton Liquid: From Theory to Realistic Materials

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In this talk, I will introduce a new type of fluid we could encounter in condensed matter materials, the exciton fluid. Unlike the electron liquid, the exciton liquid is charge neutral and difficult to response to external electric/magnetic fields. However, if the excitons are formed between two separate layers, such exciton liquid carries electric dipole, which makes it much easier to respond to external fields leading to much fruitful phenomena. In this talk, I will introduce four of them, the many-body electric break down; the quantum oscillation in its capacitance; unique electromagnetic response at Terahertz region and the non-dissipative inverse dipole Hall effect.

References:

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- [3] Yuelin Shao, Hao Shi and Xi Dai, arXiv:2509.02142 (2025)