



Seminar of the Work Group  
Nonlinear Partial Differential Equations  
Institute for Analysis  
WS 24/25

**Speaker: Siliang Weng**  
**October 22nd, 2024, 11:30 - 13:00**  
**Seminar room: SR 3.069**

## Magnetic Quantization and Phase Space Methods

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### **Abstract**

In this talk we introduce the framework of magnetic quantization, aiming to treat wave or Schrödinger equations in the presence of a strong magnetic field. Essentially this quantization gives a pseudo-differential operator theory that incorporate the magnetic field, allowing magnetic potentials that grows towards infinity. With this framework, we are able to adapt the phase space transform methods, which were designed originally for the usual wave or Schrödinger equations. Then such methods can be used to obtain well-posedness results for magnetic equations, in the setting of more general magnetic fields.