

Solid State Theory

Spring 2023, Examiner: Prof. Sigrist

1. Summary:

- Stability of metals using the Hartree-Fock approach
- Stability of semiconductors
- Why are metals shiny? Optical properties of metals in various regimes
- Relation between the conductivity and the dielectric constant
- The role of interband transitions for optical properties of metals
- Completely transparent metal

Exam atmosphere:

The atmosphere is very chill. Sigrist first does some small talk to relax the atmosphere and make you feel comfortable. The exam feels like a conversation. The prof is more interested to see that you understood the physics of the topics, rather than just the math. However remembering formulas helps a lot.