Solid State Theory, SoSe2018 (Lecturer: Hong-Hao Tu)

Lectures Tutorials	Tue + Wed(odd) Wed(even)	Topic
L1	10.04.18	**Symmetry of crystals** periodic structure, translation symmetry, point group symmetries
L2	11.04.18	**Symmetry of crystals** reciprocal lattice, Brillouin zone
L3	17.04.18	**Electrons in solids** Bloch theorem, nearly free electrons
T1	18.04.18	
L4	24.04.18	**Electrons in solids** tight-binding approximation, energy bands
L5	25.04.18	**Electrons in solids** symmetry properties of the bands, band filling
	01.05.18	**Labor Day**
T2	02.05.18	
L6	08.05.18	**Electrons in solids** second quantized formulation, fermions vs. bosons
L7	09.05.18	**Electrons in solids** interacting electrons, Fermi liquid theory
L8	15.05.18	**Electrons in solids** collective oscillation, screening
T3	16.05.18	
L9	29.05.18	**Lattice vibrations** classical theory of the harmonic crystal
L10	30.05.18	**Lattice vibrations** quantum theory of the harmonic crystal, phonons
L11	05.06.18	**Lattice vibrations** thermodynamics of phonons, specific heat
	06.06.18	**Dies academicus**
L12	12.06.18	**Theory of electron transport** semiclassical theory
L13	13.06.18	**Theory of electron transport** Boltzmann equation
L14	19.06.18	**Theory of electron transport** transport properties from Boltzmann equation
T4	20.06.18	
L15	26.06.18	**Electron gas in magnetic fields** Landau diamagnetism, de Haas-van Alphen effect
L16	27.06.18	**Electron gas in magnetic fields** classical and quantum Hall effect
L17	03.07.18	**Magnetism** Hubbard and Heisenberg models, ferromagnetism vs. antiferromagnetism
T5	04.07.18	
L18	10.07.18	**Magnetism** spin wave theory, magnons
L19	11.07.18	**Superconductivity** electron-phonon interactions
L20	17.07.18	**Superconductivity** Cooper pair, BCS theory
T6	18.07.18	