

week			Themes	Subjects				
1	24.09.21	magnetism	exchange	superexchange	spin-orbit interaction	Dzialoshinskii-Moriya coupling	Rashba	
2	01.10.21		Moments in metals	Stoner model	sd interaction	RKKY	OAM states	
3	08.10.21	spin transport	magnetoresistance	historical introduction	phenomenology			
4	15.10.21		thermodynamics of spin-dependent transport	thermodynamics or irreversible processes	Thermodynamics of spin transport	Spin diffusion length	GMR of thin layers	spin-induced interface resistance
5	22.10.21		Boltzmann theory of transport	Boltzmann theory of transport without spin	collisions with spin effects	two-current model	Spin accumulation	
6	29.10.21		Perpendicular transport and Berry phase	Boltzmand theory of Hall effect	Nernst effect, Mott formula	Heat and charge transport combined	Onsager reciprocity relations	
7	05.11.21	spin relaxation, spin temperature, spin resonances	principles of spin relaxation	two-level system	relaxation by fluctuating fields	fluctuation-dissipation theorem	spin temperature	
8	12.11.21		mechanisms of spin flips	spin-orbit scattering	magnetic scattering	Ellittott-Yafet	Dyakonov-Perel	
9	19.11.21		Magnetic resonance + DNP	Bloch equations	Transmission ESR	Overhauser effect	Adiabatic demagnetization	
10	26.11.21		Feromagnetic resonance	Landau-Lifshitz-Gilbert equation	Magnetostatic Modes	spin waves	one-magnon states	Holtstein-Primakov transformation
11	03.12.21		Antiferromagnetic Resonance	Quasi-statique response	Pincus model	spin waves	magnetic polaritons	
12	10.12.21	Spin coherences and hyper-polarization	Coherent spin dynamics	Quantum Mechanics of spin precession	Spin Operator formalism	Spin Echo	Double Quantum Coherence	Coherence Transfer
13	17.12.21		Spin Qubits	Generating entangled states	Quantum logic gates for spins	Heat bath algorithmic cooling	partner pairing algorithm	
14	24.09.21		many overtimes during weeks 1-12					