

520011 SE Magnetism and Spintronics (2021S)

Andrii Chumak

Fr, 12:00 - 14:00 , On-line

Date	Speakers	Topic
19.03	Kick off	Organization + "Scientific presentations, a few hints"
26.03		
16.04	Florian Slanovc	Shape optimization of magnetic materials
23.04	Patrick Koos	MRI: Magnetic Resonance Imaging
	Somar Dibeh	Spin transfer torque and it's applications
30.04	Sabri Koraltan	Current driven spin wave excitations in antiferromagnetically coupled vortex structures
07.05	Marcel Gasser	HAMR: Heat-Assisted Magnetic Recording
14.05	Björn Heinz (special guest, TU Kaiserslautern)	Spin-wave propagation in nano-scaled conduits
28.05	Philipp Koller	NV centers and their applications in sensing
04.06	Shiraz Siddiqui	Magnetic properties of novel nanostructures
	Peter Flauger	Micromagnetic simulations of MTJs utilizing the non-equilibrium Green's function formalism
11.06	Noura Zenbaa	Inverse design photonics
18.06	David Schmoll	Theory, principles and application of a dilution based Cryostat
	Sebastian Lamb-Camarena	Spintronic neuromorphic and magnetic reservoir computing

25.06	Dominic Winkler	Liquid magnets

Proposed topics for presentations

Magnetism

- ~~MRI: Magnetic Resonance Imaging~~
- 3-dimensional magnetic nano-structures
- Electric motors
- Echo phenomenon in general
- ~~Liquid magnets~~

Magnonics (physics of spin waves)

- Bose-Einstein Condensation (BEC) of magnons
- Spin-wave caustics
- ~~Inverse design photonics~~
- Spin-wave solitons and bullets
- Excitation of spin waves by spin-transfer torque
- Magnonic crystals - artificial periodic media

Spintronics data storage and sensing

- Magnetoresistive sensors of magnetic field
- Racetrack memory
- MRAM: Magnetic Random-Access Memory
- ~~HAMR: Heat-Assisted Magnetic Recording~~

Spintronics phenomena

- Neuromorphic computing in spintronics
- Ultra-fast magnetism
- Spin Hall effect
- Spin Seebeck effect

- Spin transfer torque