

Scientific Programme

Monday, November 9

9:00-9:20 Welcome Speech

First morning session

9.20-10.00 Vahid Sandoghdar, Max-Planck-Institute for the science of light, *Single rare earth ions as a new platform for solid-state quantum optics*, INVITED TALK

10.00-10.30 Sen Yang, University of Stuttgart, *High fidelity transfer and storage of photon states in a single nuclear spin*, HOT TOPIC TALK

Coffee Break

Second Morning session

11.00-11.40 Mete Atatüre, University of Cambridge, *High quality solid-state spin-photon interfaces*, INVITED TALK

11.40-12.00 Qian Li, University of Lund, *Using a rare-earth-ion-doped crystal to shift the frequency of light*

12.00-12.20 Christian Weinzetl, University of Oxford, *Broadband low-noise Raman quantum optical memory in neutral NV centres*

Lunch Break

First Afternoon session

14.00-14.40 Jörg Wrachtrup, University of Stuttgart, *Spin quantum memories for enhanced sensing, photon storage and photon correlation*, INVITED TALK

14.40-15.00 Genko Genov, Technical University of Darmstadt, *Ultra-long, phase-insensitive storage of coherences via reversible mapping onto long-lived populations*

15.00-15.20 Cyril Laplane, University of Geneva, *High precision measurement of the Dzyaloshinsky-Moriya interaction between two strongly interacting Nd^{3+} ions*

15.20-15.40 Gabriel Hétet, Ecole Normale Supérieure of Paris, *Coherent population trapping of a single nuclear spin under ambient conditions*

Coffee Break

Second Afternoon session

16.10-16.50 **Andrei Faraon**, California Institute of Technology, *Quantum light-matter interfaces based on rare-earth-doped crystals and nano-photonics*, INVITED TALK

16.50-17.10 **Nadezhda Kukharchyk**, Ruhr-University Bochum, *FIB-Patterned Erbium spin-ensembles in Yttrium orthosilicate*

Tuesday, November 10

First morning session

9.00-9.40 **Pavel Bushev**, University of Saarland, *Hybrid quantum systems with rare-earth spin ensembles*, INVITED TALK

9.40-10.10 **Giacomo Corrielli**, Photonics and Nanotechnology Institute (IFN-CNR) of Milan, *Waveguide-based optical memory fabricated by femtosecond laser micromachining in rare earth doped crystal*, HOT TOPIC TALK

10.10-10.30 **Roman Kolesov**, University of Stuttgart, *Engineering single rare-earth centers in optical crystals for on-chip photonics and their spin properties*

Coffee Break

Second Morning session

11.00-11.40 **Matthew Sellars**, Australian National University, *Progress towards an integrated quantum photonic processor based on rare earth doped crystals*, INVITED TALK

11.40-12.00 **Yoann Attal**, Thales Communications & Security, *Rainbow RF spectrum analyzer: pseudo-periodic model for programming improvement*

12.00-12.20 **Lars Rippe**, University of Lund, *Laser frequency stabilization beyond the Brownian limit using slow light cavities*

Lunch Break

First Afternoon session

14.00-14.40 **Ronald Hanson**, Delft University of Technology, *Quantum networks based on diamond spins*, INVITED TALK

14.40-15.00 **Kutlu Kutluer**, ICFO, *A spectral hole memory for light at the single photon level*

15.00-15.20 **Julian Dajczgewand**, Laboratoire Aimé Cotton, *Optical quantum memory at telecom wavelength*

15.20-15.40 **Philip Bustard**, National Research Council Canada, *Ultrafast slow-light: Raman-induced delay of THz-bandwidth pulses*

Poster session

Wednesday, November 11

First morning session

9.00-9.40 **John Morton**, University College London, *Electron and nuclear spins of donors in silicon*, INVITED TALK

9.40-10.10 **Audrey Bienfait**, SPEC, CEA-Saclay, *Magnetic resonance at the quantum limit*, HOT TOPIC TALK

10.10-10.30 **Andreas Reiserer**, Delft University of Technology, *Towards quantum networks with spin qubits in diamond*

Coffee Break

Second Morning session

11.00-11.40 **Jevon Longdell**, University of Otago, *Towards quantum frequency conversion between microwaves and light using rare-earth dopants*, INVITED TALK

11.40-12.00 **Emmanuel Cruzeiro**, University of Geneva, *Zeeman population lifetimes as a function of magnetic field strength and angle in Nd:Y₂SiO₅*

12.00-12-20 **Andreas Walther**, University of Lund, *Rare-earth-based iterative ultrasound optical tomography. The human laser concept*

Lunch Break

First Afternoon session

14.00-14-40 **Lucile Veissier**, University of Calgary, *Erbium-doped fiber: a new possibility for quantum storage at telecom-wavelength*, INVITED TALK

14.40-15.00 **Marcel Hain**, Technical University of Darmstadt, *Light storage by EIT, using multi-pass configurations in a doped solid to reach efficiencies up to 76%*

15.00-15.20 **John Bartholomew**, Chimie ParisTech - CNRS, *Extending coherence times in $\text{Eu}^{3+}:\text{Y}_2\text{O}_3$*

15.20-15.40 **Dmitry Sobgayda**, Institute of Applied Physics of the Russian Academy of Sciences, *Atomic frequency comb memory in an isotopically pure $^{143}\text{Nd}^{3+}:\text{Y}_7\text{LiF}_4$ crystal*

Coffee Break

Second Afternoon session

16.10-16.50 **Christoph Simon**, University of Calgary, *Cross-phase modulation of a probe stored in a waveguide for non-destructive detection of photonic qubits*, INVITED TALK

16.50-17.10 **Zhonghan Zhang**, University of Pisa, *Crystal growth and high resolution spectroscopy of 0.1% $\text{Eu}^{3+}:\text{KYF}_4$*

17.10-17.30 **Thomas Lutz**, University of Calgary, *Modification of phonon processes in nano-structured rare-earth-ion-doped*

Thursday, November 12

First morning session

9.50-10.10 **Daniel Rieländer**, ICFO, *Frequency-bin entanglement of photon pairs compatible with telecom-heralding and solid state quantum memories*

10.10-10.30 **Benjamin Brecht**, University of Oxford, *A flexible photon-pair source for quantum memories*

Coffee Break

Second Morning session

11.00-11.40 **Frank Koppens**, ICFO, *Electrically controllable strong light-matter interactions with graphene*, INVITED TALK

11.40-12.00 **Philippe Goldner**, Chimie ParisTech - CNRS, *Electrical control of nuclear spin coherence of rare-earth ions in solids*

12.00-12.20 **Jonathan Lavoie**, University of Geneva, *Light-matter micro-macro Eentanglement*

Lunch Break

First Afternoon session

14.00-14.40 **David Hunger**, Ludwig-Maximilians University Munich, *Enhanced light-matter interfaces with fiber-based Fabry-Perot microcavities*, INVITED TALK

14.40-15.00 **Jenny Karlsson**, University of Lund, *Hole burning at the few-ion level - combining high spectral and spatial resolution*

15.00-15.20 **Loic Morvan**, Thales Communications & Security, *20 GHz instantaneous bandwidth RF spectrum analyzer with high time-resolution*

15.20-15.40 **Jean Etesse**, University of Geneva, *Coherent spin control at the quantum level in an ensemble-based optical memory*

Coffee Break

Second Afternoon session

16.10-16.50 **Charles Thiel**, Montana State University, *Evaluating the practical impact on applications of excitation-induced decoherence in rare-earth-doped optical materials*, INVITED TALK

16.50-17.10 **Yacine Halioua**, Université Paris Diderot - CNRS, *AlGaAs devices generating non-classical states of light*

Closing Remarks