

Workshop on rare-earth-crystals for quantum information processing, Oct 7-9, 2020

Discussion space: [gather.town RE community](#)

(The gather town link will be available for a month)

Wednesday 7		All starting time are Netherlands time (GMT+2)			
Session	Chair	Starting time	Duration (incl. questions)	Speaker	Title
Welcome		14:30	00:15	Wolfgang Tittel (TU Delft)	
Nano 1	David Hunger (KIT)	14:45	00:30	Andrei Faraon (Caltech)	Introduction and overview
Nano 1		15:15	00:20	Andreas Reiserer (MPI)	Coherent emission of erbium in a high-Q resonator
Break		15:35	00:20		
Nano 2	Hugues de Riedmatten (ICFO)	15:55	00:20	Lorenz Weiss (MPI)	Erbium in silicon nanophotonic structures
Nano 2		16:15	00:20	David Hunger (KIT - not recorded)	Progress towards single Eu ion qubits
Nano 2		16:35	00:20	Songtao Chen (Princeton)	Parallel single-shot measurement and coherent control of solid-state spins below the diffraction limit
Break		16:55	00:30		
Nano 3	Andreas Reiserer (MPI)	17:25	00:20	Mi Lei (Caltech)	On chip optical quantum memories using erbium doped crystals and silicon photonics
Nano 3		17:45	00:20	Andrei Ruskuc (Caltech)	Single Yb171 rare-earth ion qubits
Dinner break		18:05	03:55		
Q&A 1		22:00	01:00		
End		23:00			

Thursday 8		All starting time are Netherlands time (GMT+2)			
Session	Chair	Starting time	Duration (incl. questions)	Speaker	Title
Welcome		08:30	00:05	Wolfgang Tittel (TU Delft)	
Transduction 1	Thierry Chaneliere (CNRS/UGA)	08:35	00:30	Jevon Longdell (U Otago)	Hybrid Quantum systems using fully Concentrated Rare Earth Crystals
Transduction 1		09:05	00:20	John Bartholomew (U Sydney)	Coherent microwave to optical transducers using planar rare-earth ion devices
Break		09:25	00:20		
Transduction 2	Perrine Berger (Thales Group)	09:45	00:20	Matt Berrington (ANU)	Efficient frequency conversion using a magnon mode in a rare earth crystal
Transduction 2		10:05	00:20	Louis Nicolas (U Geneva)	Loop-gap resonator in Yb:YSO
Break		10:25	00:20		
Spectroscopy 1	Diana Serrano (IRCP)	10:45	00:30	Mike Reid (U Canterbury)	Investigation of the Hyperfine structure of Ho ³⁺ in Y ₂ SiO ₄

Spectroscopy 1		11:15	00:20	Eloïse Lafitte-Houssat (IRCP)	Optical and spin inhomogeneous linewidths in Yb:Y ₂ SiO ₅ single crystals
Spectroscopy 1		11:35	00:20	Marianne Le Dantec (CEA Saclay)	Millisecond spin coherence in an erbium-doped crystal
Lunch break		11:55	02:05		
Spectroscopy 2	Philippe Goldner (IRCP)	14:00	00:20	Jeff Thompson (Princeton)	Recent material development
Spectroscopy 2		14:20	00:20	Nao Harada (IRCP)	Rare earth doped thin films for quantum technologies
Spectroscopy 2		14:40	00:20	Tian Zhong (U Chicago)	Epitaxial rare-earth qubits and hybrid systems
Spectroscopy 2		15:00	00:20	Jacob Davidson (TU Delft)	g-tensor measurements of Tm:YGG
Break		15:20	00:20		
Classical processing 1	Margherita Mazzera (Heriot-Watt U)	15:40	00:20	David Gustavsson (Lund U)	Slow light laser frequency stabilization
Classical processing 1		16:00	00:20	Lothaire Ulrich (Thales Group - not recorded)	High performance photonic RF filter using Tm:YAG crystal
Break		16:20	00:20		
Classical processing 2	Jean Etesse (CNRS/ Inphyni)	16:40	00:20	Anne Louchet-Chauvet (CNRS / ESPCI)	Time-reversal of RF signals with an atomic processor
Classical processing 2		17:00	00:30	Bess Fang-Sortais and Signe Seidelin (OBSPM)	From Ultra-stable Lasers to Optomechanical Resonators using Rare-earth Systems
Dinner break		17:30	04:30		
Q&A 2		22:00	01:00		
End		23:00			

Friday 9

All starting time are Netherlands time (GMT+2)

Session		Starting time	Duration (incl. questions)	Speaker	Title
Welcome	Chair	09:00	00:05	Wolfgang Tittel (TU Delft)	
Quantum processing 1	Stefan Kröll (Lund U)	09:05	00:30	Matthew Sellars (ANU)	Scalable linear optical quantum computing based on rare earth quantum memories: concepts and progress
Quantum processing 1		09:35	00:20	Rose Ahlefeldt (ANU)	Strong resonant optical coupling between two erbium ions in silicon
Break		09:55	00:20		
Quantum processing 2	Mikael Afzelius (U Geneva)	10:15	00:20	Thierry Chanelière (CNRS/UGA)	Superhyperfine induced photon-echo collapse of erbium in Y ₂ SiO ₅
Quantum processing 2		10:35	00:20	Sergey Moiseev (KNRTU)	Storage of low-photon pulses on Tm ³⁺ : Y ₃ Al ₅ O ₁₂ crystal in cavity assistant quantum memory ROSE protocol
Quantum processing 2		10:55	00:20	Zong-Quan Zhou (USTC)	Towards long-distance quantum communication: quantum repeater and quantum hard drive

Break		11:15	00:30		
Quantum processing 3	Thomas Halfman (TU Darmstadt)	11:45	00:20	Antariksha Das (TU Delft)	Storing light in long-lived optical coherence of Tm:YGG
Quantum processing 3		12:05	00:30	Jelena Rakonjac and Samuele Grandi (ICFO)	Entanglement of solid-state quantum memories
Closing remarks		12:35	00:15	Wolfgang Tittel (TU Delft)	
Lunch break		12:50	03:10		
Q&A 3		16:00	01:00		
End		17:00			

If you experience any problem with the recordings, please contact d.j.h.oser@tudelft.nl