

QuantERA Funded Projects' Mid-term Strategic Conference

Granada, 13-14 November 2019

Universidad de Granada, Escuela Técnica Superior de Ingeniería de Edificación

Fuentenueva University Campus

Calle Dr. Severo Ochoa, s/n, 18001 Granada

Day 1: 13th November

Time	QUANTUM TECHNOLOGIES IN EUROPE	Speaker
08:30	<i>Welcome Coffee</i>	
09:00	Welcome	Enrique Playán Jubillar AEI Director Pablo Cortés Achedad (TBC) Junta de Andalucía Universidad de Granada (TBC) Konrad Banaszek QuantERA
9:45	Keynote: Quantum Technologies, Quo Vadis?	Nicolas Gisin
10:30	<i>Coffee Break</i>	
11:00	European Quantum Ambitions	Pascal Maillot European Commission
11:30	Quantum Technologies Flagship Unifying Vision	Tommaso Calarco Quantum Flagship
12:00	Linking National and Regional Quantum research and innovation through Europe <i>Panel discussion on how to create synergies on the European level between with the representatives from QuantERA, Quantum Technology Flagship, National Programmes and Quantum Research Institutes.</i> <u>QuTech Delft</u> <i>Connecting Research & Industry</i> <u>Network of Excellence Quantum Spain</u> <i>Spanish activities in Quantum. Platform created by CSIC.</i> <u>IFMIF-DONES</u> <i>IFMIF-DONES. A key facility for fusion energy and multidisciplinary applications</i> <u>The Institute of Photonic Sciences</u> <i>Innovation strategy</i> <u>National funding in Quantum Technologies</u> <i>Overview of national Quantum programmes</i> <u>The Quantum Flagship Ecosystem</u> <i>QT Flagship ecosystem and connections with national programs and Industry.</i>	Freeke Heijmann Juan José Ripoll Javier Praena Rob Sewell Marek Żukowski Thierry Debuisschert
	Wrap up and conclusions	Florence Quist, QuantERA
13:45	Introduction to QuantERA Call 2019 poster session	Marlena Wosiak, QuantERA



14:00 **Lunch Break**
& Poster Session presenting projects funded within the QuantERA Call 2019

PRESENTATIONS of QuantERA PROJECTS

15:00 **Introduction: QuantERA mid-term Evaluation** **Nicoleta Dumitrache, QuantERA**

15:10 **QuantERA Project presentations: Q-Information** **Chair: Marek Kus**

- Quantum Information Processing with Complex Media (QuompleX)
- Theory-Blind Quantum Control (TheBlinQC)

Mehul Malik

Florian Mintert

15:40 **QuantERA Project presentations: Q-Communication**

- CMOS Compatible Single Photon Sources based on SiGe Quantum Dots (CUSPIDOR)
- Hyper-entanglement from ultra-bright photon pair sources (HYPER-U-P-S)
- Silicon Photonics for Quantum Fibre Networks (SQUARE)

Chair: Marek Kus

Thomas Fromherz

Ana Predojevic

Karsten Rottwitt

16:10 **Coffee Break**

16:40 **QuantERA Project presentations: Q-Computation**

- High dimensional quantum Photonic Platform (HiPhoP)
- Quantum algorithms and applications (QuantAlgo)
- QUANTum Technologies with 2D-Oxides (QUANTOX)
- Long-range quantum bus for electron spin qubits in silicon (Si QuBus)
- Scaling Up quantum computation with MOlecular spins (SUMO)
- 2D hybrid materials as a platform for topological quantum computing (Topoquant)
- Quantum Code Design and Architecture (QCDA)
- Topologically protected states in double nanowire superconductor hybrids (SUPERTOP)

Chair: Miguel Angel Martin-Delgado

Roberto Osellame

J r mie Roland

Marco Salluzzo

Lars Schreiber

Fernando Luis

Werner Wegscheider

Earl Campbell

Szabolcs Csonka

18:00 **End of Day 1 of the Meeting**

19:00 **Dinner & Cocktail**

Restaurante Carmen de la Victoria: Cuesta del Chapiz, 9, 18010 Granada



Day 2: 14th November

9.00-14.30

PRESENTATIONS of QuantERA PROJECTS

08:30 *Welcome Coffee*

09:00

QuantERA Project presentations: Q-Metrology

Chair: Timothy Duty

- MICROwave quantum SENSing with diamond color centers (MICROSENS)
- Spin-based nanolytics – Turning today's quantum technology research frontier into tomorrow's diagnostic devices (NanoSpin)
- ORganic QUantum Integrated Devices (ORQUID)
- Optomechanical quantum sensors at room temperature (QuaSeRT)
- Trapped Atom Interferometers in Optical Lattices (TAIOL)
- Controlling EPR and Bell correlations in Bose-Einstein condensates (CEBECC)
- Scalable Electrically Read Diamond Spin Qubit Technology for Single Molecule Quantum Imagers (Q-Magine)
- Cavity-Enhanced Quantum Optical Clocks (Q-Clocks)

Thierry Debuisschert

Jens Anders

Costanza Toninelli

Francesco Marin

Franck Pereira dos Santos

Christoph Westbrook

Milos Nesladek

Matteo Barbiero

10:10

QuantERA Project presentations: Q-Simulation

Chair: André Xuereb

- Polariton lattices: a solid-state platform for quantum simulations of correlated and topological states (InterPol)
- Non-equilibrium dynamics in Atomic systems for QUAntum Simulation (NAQUAS)
- Quantum Technologies For LAttice Gauge theories (QTFLAG)
- Towards Room Temperature Quantum Technologies (RouTe)
- Entangled Rydberg matter for quantum sensing and simulations (ERYQSEN)

Jacqueline Bloch

Jérôme Beugnon

Simone Montangero

Guido Pupillo

Markus Hennrich

11:00

Coffee Break



11:30	<p>Panel discussion: Strategic discussion on QuantERA</p> <p><i>Strategic discussion on the future direction of QuantERA: with the representatives of QuantERA, Quantum Technology Flagship and National Quantum Network</i></p> <p>Setting the science: from QuantERA I to QuantERA II</p> <p><u>Experiences from QuantERA funded projects</u></p> <p><u>National perspective: Quantum Community Network</u></p> <p><u>QT Flagship: Strategic Research Agenda</u></p> <p><u>Quantum Flagship & QuantERA</u></p>	<p>Francesco Saverio Cataliotti QuantERA</p> <p>Ana Predojević, HYPER-U-P-S</p> <p>Yasser Omar, Quantum Community Network</p> <p>Elisabeth Giacobino QT Flagship Scientific Advisory Board</p> <p>Tommaso Calarco, Quantum Flagship</p>
13:00	Announcement industry focused 2020 Event for QuantERA projects	<p>Ali Anjomshoaa, QuantERA</p>
13:15	Final Conclusions	<p>Konrad Banaszek, QuantERA</p>
13:30	<i>Lunch</i>	

INTERNAL QuantERA MEETINGS 14:30-18:30

14:30	<p>Three parallel QuantERA Meetings (Closed sessions)</p>		
	<p>QuantERA CSC</p> <p>Consortium Steering Committee Meeting</p>	<p>QuantERA SAB (15:30)</p> <p>Strategic Advisory Board Meeting</p>	<p>QuantERA Funded Projects</p> <p>Projects & QT Flagship SEB Meeting</p>
17:30	<p>Introductory meeting for the Call 2019 funded projects</p>		<p>Marlena Wosiak & Serguei Fedortchenko, QuantERA</p>
18:30	End of Day 2 of the Meeting		

