FINAL PROGRAMME

Tuesday, 19 September 2023			
07:45	08:30	Registration & Coffee	
08:30	08:35	**Welcome**	**Josef Aschbacher** **ESA Director General**
08:35	08:40	**Opening Remarks**	**José Gavira Izquierdo** **Head of ESA Mechatronics & Optics Division**
08:40	08:45	**Opening Remarks**	**Marco Di Clemente** **Head of Technology** **ASI - Italian Space Agency**
Quantum Communications Session 1 – Policy **Chair: Kyriaki Minoglou — Head of the Optoelectronics Section | ESA**			
08:45	09:15	Keynote — The EU's Quantum Decade	**Laurent Olislager** **Policy Officer, Quantum Technologies** **European Commission**
09:15	09:30	Euro QCI: conclusions from the EC design studies	Adam Lewis European Commission JRC
09:30	09:45	The QUID project - Quantum Italy Deployment	Mario Siciliani De Cumis ASI - Italian Space Agency
09:45	10:00	Secure Communications in Space: Thales Alenia Space Italia Quantum-based solutions and practical implementations	Andrea Geraldi Thales Alenia Space
10:00	10:15	Transition towards commercial QKD systems in space	Tobias Lamour Airbus Defence and Space Gmbh
10:15	10:30	Building blocks for Space Quantum Communication	Dylan Le Gac AUREA Technology
10:30	10:45	Coffee Break	
Quantum Communications Session 2 – Policy **Chair: Mario Siciliani De Cumis — ASI | Italian Space Agency**			
10:45	11:15	**Keynote — Quantum Technologies and Space: New Possibilities – New Opportunities**	**Roger McKinlay** **Challenge Director, Quantum Technologies** **UK Research and Innovation**
11:15	11:30	Update on TNO's free space quantum communication activities and plans	Bob Dirks TNO
11:30	11:45	Free-space Quantum Key Distribution systems	Giuseppe Vallone University of Padova
11:45	12:00	Modelling Satellite to Ground Quantum Communications	Peter Barrow Heriot-Watt University
12:00	12:15	Performance Comparison between Satellite- and Ground-Based Quantum Communication Channels	Gustavo Castro Do Amaral TNO
12:15	12:30	Integration of Satellite QKD networks into Terrestrial QKD networks	Thomas Bäumer SES
12:30	14:00	Lunch Break	
Quantum Communications Session 3 – Systems / Technology **Chair: Luigi D'Arcio — QKDSat Project | ESA**			
14:00	14:30	**Keynote — Quantum Information Networks: the Space Part**	**Mathias Van Den Bossche** **Director, Research, Development and Product Policy** **Thales Alenia Space France**
14:30	14:45	Quantum Key Distribution between CubeSats of the Q-ANSER Program	Angel Jiménez Girela INTA
14:45	15:00	Compact Quantum Communication payload for Nanosatellites	Jaya Sagar University of Bristol
15:00	15:15	Qube and Qube-II - Towards Quantum Key Distribution with Small Satellites	Lukas Knips TBD LMU Munich, MPI Quantum Optics
15:15	15:30	Considerations while changing the wavelength in QKD protocols.	Carlos Andres Melo Luna Fraunhofer IOF
15:30	15:45	Emulation of single-overpass satellite-to-ground quantum key distribution	Ravinder Singh Toshiba Europe Limited Cambridge Research Laboratory
15:45	16:15	Coffee Break	
Quantum Communications Session 4 – Technology **Chair: Eric Wille — Optoelectronics Section | ESA**			
16:15	16:30	Space and Terrestrial Quantum TimeTagger systems	Pavels Razmajevs Eventech
16:30	16:45	Bright polarisation entanglement photon pair source for uplink applications	Piotr Kolenderski Copernicus University In Toruń
16:45	17:00	Polarization tracking system based on liquid crystals for quantum communications	Pilar Garcia Parejo INTA
17:00	17:15	Random in Space - Quantum Cryptography and Randomness	Pascal Kobel OHB
17:15	17:25	Wrap up & Discussion	Chair
17:25	17:45	QKD - Quantum Kard Distribution	Jose Pizarro ESA
17:45	19:30	Welcome Reception	
19:30	21:00	Free Time	
21:00	23:05	Quantumania Movie Screening (Optional)	

Wednesday, 20 September 2023			
08:00	08:30	Coffee	
Quantum Communications Session 5 – Technology / Policy **Chair: Jorge Piris — Optoelectronics Section | ESA**			
08:30	09:00	**Keynote — ESA Quantum Technology Cross Cutting Initiative**	**Eric WIlle** **ESA**
09:00	09:15	Photon source for distributing entanglement from optical ground stations	Alexander Pickston Heriot-Watt University
09:15	09:30	High-performance entangled photon source for secure space-based quantum communication	Armin Hochrainer qtlabs
09:30	09:45	Emerging platform for deterministic single and entangled photon generation at 1.5µm and beyond	Temu Hakkarainen ORC, Tampere University
09:45	10:00	Towards space-based quantum memories: use cases and experimental roadmap	Mustafa Gündoğan Humboldt-Universität zu Berlin
10:00	10:30	Coffee Break & Group Photo	
Quantum Sensing Session 1 **Chair: Marco Di Clemente — Head of Technology — ASI | Italian Space Agency**			
10:30	11:00	**Keynote — Applying the space-wise approach to concepts of future quantum missions for the Earth gravity field determination**	**Federica Migliaccio** **Professor of Geodesy and Geomatics** **Politecnico di Milano**
11:00	11:15	ESA Activities and Perspectives on Quantum Space Gravimetry	Olivier Carraz ESA
11:15	11:30	CARIOQA-PMP: Towards a Pathfinder Mission for Quantum Space Gravimetry	Thomas Lévèque CNES
11:30	11:45	Development of space-qualified lasers for quantum interferometry missions	Aurélien Eloy Exail
11:45	12:00	Cold Atom Interferometer Instruments for Gravitational Earth Observation at Airbus	Stephan Tobias Seidel Airbus DS
12:00	12:15	Quantum Technologies Enabled by Additive Manufacturing (QTEAM)	Tristan Valenzuela STFC - RAL Space
12:15	12:30	Enabling Technologies for Cold Atom Experiments in Space	Marvin Warner Center of Applied Space Technology and Microgravity (ZARM)
12:30	14:00	Lunch Break	
Quantum Sensing Session 2 **Chair: Olivier Carraz — Optoelectronics Section | ESA**			
14:00	14:30	**Keynote — Quantum Sensors for Science Exploration**	**Lisa Wörner** **Institute for Quantum Technologies** **German Aerospace Center (DLR)**
14:30	14:45	Spatial-mode-demultiplexing for distance metrology	Luigi Santamaria ASI - Italian Space Agency
14:45	15:00	Future European Research Infrastructure for precise Time and Frequency transmission over photonic networks - design study finalized	Ondřej Číp Institute of Scientific Instruments of CAS
15:00	15:15	A strontium optical clock based on Ramsey-Bordé spectroscopy	Amir Mahdian Humboldt-Universität Zu Berlin
15:15	15:30	Chip-scale and compact clocks for space applications at INRIM	Salvatore Micalizio INRIM
15:30	15:45	Quantum defects in SiC for precision magnetometry and navigation	Kingshuk Mallick Durham University
15:45	16:15	Coffee Break	
Quantum Sensing Session 3 **Chair: Bruno Leone — Optoelectronics Section | ESA**			
16:15	16:45	**Keynote — Independent Technical Assessment of NASA and External Quantum Sensing Capability**	**Upendra Singh** **NASA Langley Research Centre**
16:45	17:00	Novel high-reliability lasers for strontium and rubidium frequency standards and sensor applications	Loyd McKnight Fraunhofer Centre for Applied Photonics
17:00	17:15	VECSEL-based single frequency lasers: enabling industrial scaling of quantum technology	Mircea Guina Vexlum
17:15	17:30	Quantum Microwaves: Towards Applications in Quantum Communications and in Quantum Sensing	Yasser Omar PQI – Portuguese Quantum Institute, University of Lisbon
17:30	17:45	Quantum Rangefinding with AlGaAs Waveguides as Photon-pair sources	Bianca Nardi University of Innsbruck
17:45	18:15	**Keynote — NASA's Earth Science Division's Quantum Sensing Pathfinder Program Overview**	**Parminder Ghuman** **NASA**
18:15	18:25	Wrap up & Discussion	Chair
18:25	20:10	Guided Sassi Tour	
20:10	21:10	Free Time	
21:10	23:10	Social Dinner	

Thursday, 21 September 2023			
08:30	09:00	Coffee	
Quantum Computing Session 1 **Chair: Bertrand Le Saux — Phi-Lab Explore Office | ESA**			
09:00	09:30	**Keynote — Quantum Computing for High-Energy Physics - State of the Art, Challenges, and Opportunities for Cross-Domain Collaboration**	**Alberto DI Meglio** **Head of CERN openlab** **CERN**
09:30	09:45	Quantum Advantage for Earth Observation — Use-cases, challenges, and seeking a way forward	Piotr Gawron AstroCeNT — Nicolaus Copernicus Astronomical Center
09:45	10:00	Quantum Computing for Earth Observation Study: A Space Sector Industry perspective	Mattia Verducci Thales Alenia Space
10:00	10:15	Simulations of quantum algorithms and their role in the integration of QC into HPC	Luigi Iapichino Leibniz Supercomputer Centre (LRZ)
10:15	10:30	Coffee Break	
Quantum Computing Session 2 **Chair: Gabriele De Canio — Strategy & Coordination Unit | ESA**			
10:30	11:00	**Keynote — From quantum picturalism to quantum NLP and quantum AI**	**Bob Coecke** **Chief Scientist** **Quantinuum**
11:00	11:15	Scalable solid state coolers for quantum technologies	Renan Loreto VTT
11:15	11:30	Quantum versions of space and other applications useful for space	Koen Bertels University of Ghent & Qbee.eu
11:30	12:00	**Keynote — On Quantum and Security: ESA state of play**	**Massimo Panzeri** **ESA Security Office**
12:00	12:10	Wrap up & Discussion	Chair
12:10	12:15	**Closing Remarks**	**Kyriaki Minoglou** **Head of ESA Opto-Electronics Section**
12:15	14:00	Lunch Break	
14:00	18:00	Guided Tour of Centre "G. Colombo" Agenzia Spaziale Italiana	

Keynote duration	30
Standard duration	15
Welcome duration	5
Remarks duration	5
Wrapup duration	10
Coffee Break 1	30
Coffee Break 2	15