AIT announces participation in SES-led consortium to develop satellite-based cybersecurity system

AIT Austrian Institute of Technology joins a freshly formed consortium comprising leading European research and industry organisations working on a next generation satellite-based cybersecurity system. The consortium led by the world-leading satellite operator SES and supported by the European Space Agency (ESA) will develop Quantum Cryptography Telecommunication System (QUARTZ). QUARTZ applications will address the needs of users such as telecommunication operators, financial organisations, infrastructure providers, institutions and governmental organisations.

Vienna, 02. August 2018 (AIT): Quantum Key Distribution (QKD) is a method for secret key agreement based on optical communication with quantum signals. It is fundamentally different from classical cryptography and is currently the only known method that will be provably secure against attacks from future quantum computers. Satellite-based QKD can overcome the distance limitations of several hundred kilometres still present in fibre based QKD systems.

Over the coming three years the AIT experts of the optical quantum technologies research group will create next generation software to enable the distribution of secure keys between optical ground stations on earth that will all be connected by quantum links with a quantum enabled satellite. This will achieve a reliable, globally available cybersecurity system and deliver next-generation encryption keys to networks in geographically dispersed areas, thus leveraging the unique advantages of satellites, including global reach and unlimited coverage.

"This revolutionary technology will enable highly secure communication links on a global scale in the next decade. If you consider how much effort is internationally put into quantum computing these days and the recent progress made you should start preparing yourself against attacks with future quantum computers now.", says Dr. Christoph Pacher, quantum cryptography expert and project coordinator at AIT.

Helmut Leopold, PhD, Head of Center for Digital Safety & Security: "By successfully combining scientific excellence with professional engineering and building a critical mass of competence in Austria, AIT has achieved a leading international position in quantum based encryption technologies."

The QUARTZ consortium will define, design and develop a satellite-based Quantum Key Distribution (QKD) system and service architecture, which will include the future service and the core technologies, as well as ground end-to-end testing. The development of QUARTZ is supported by the European Space Agency (ESA) under a recently announced agreement with SES.

The members of the consortium are:

- [AIT Austrian Institute of Technology GmbH](#)
- [German Aerospace Center (DLR)](#))
- [ID Quantique](#)
- [itrust consulting](#)
- [Ludwig-Maximilian University](#)
- [LuxTrust](#)
- [Max Planck Institute for the Science of Light](#)
- [Palacky University](#)
- [SES (Coordinator)](#)
- [Tesat-Spacecom](#)
- [TNO](#)

Quantum Technology Research @ AIT

The AIT Austrian Institute of Technology is Austria's largest research and technology organisation and a specialist in the key infrastructure issues of the future. In the context of comprehensive and global networking and digitalisation, the Center for Digital Safety & Security is developing modern information and communication technologies (ICT) and systems designed to establish secure and reliable critical infrastructure.

AIT experts in the field of Optical Quantum Technologies focus on system design and integration of quantum cryptography solutions as well as product development using quantum inspired technologies to support research & development activities in quantum optics and other applied research fields such as life sciences. The goal of this AIT core topic is to bring quantum technology from the laboratory to the customer. Further information: https://www.ait.ac.at/quantum

Contact:

Michael W. Mürling
AIT Austrian Institute of Technology
Marketing and Communications
Center for Digital Safety & Security
T +43 (0)50550-4126 | M +43 (0)664 2351747
michael.muerling@ait.ac.at | www.ait.ac.at

Daniel Pepl
AIT Austrian Institute of Technology
Corporate and Marketing Communications
T +43 (0)50550-4040 | M +43 (0)664 6207805
daniel.pep@ait.ac.at | www.ait.ac.at

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