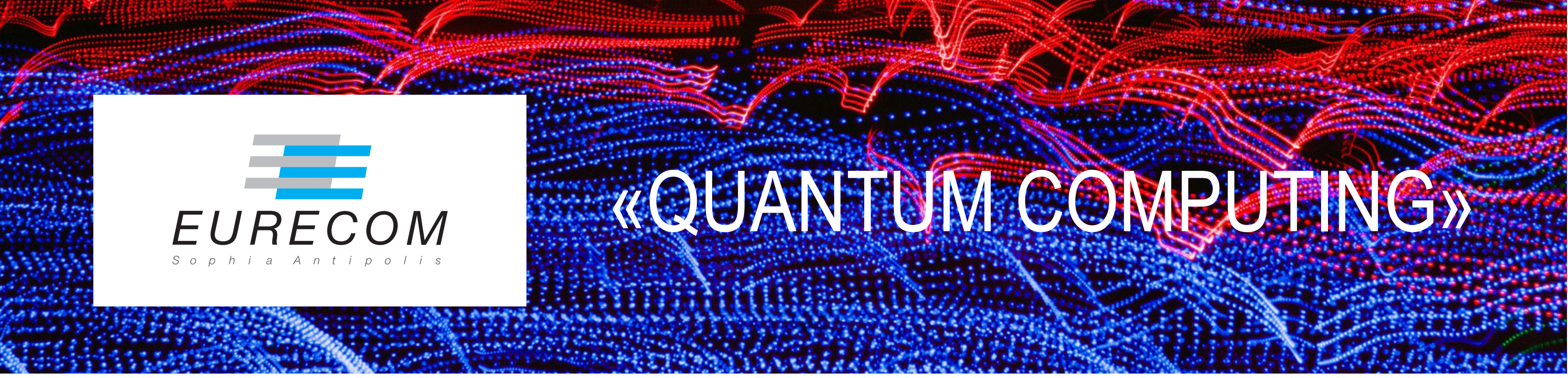


EURECOM
Sophia Antipolis

«QUANTUM COMPUTING»

L'ordinateur quantique grand public verra-t-il vraiment le jour? dans quel délai?
Faut-il déjà se préparer pour l'ère post-quantique en sécurité informatique?
Ce sont des questions posées de plus en plus fréquemment par les responsables informatiques et les chercheurs. Afin d'apporter de la lumière sur ces questions,

EURECOM organise un séminaire grand public le Jeudi 24 Mai - Amphithéatre Marconi - 14h

Deux conférenciers de haut vol viendront exposer les grands principes du calcul quantique et son impact potentiel sur la sécurité informatique

14:00: Calcul Quantique- **Silvano De Franceschi,** Expert en Nano-Electronique Quantique, Quantum Silicon, CEA-INAC, Grenoble.

«A view on quantum computing and its physical realization»

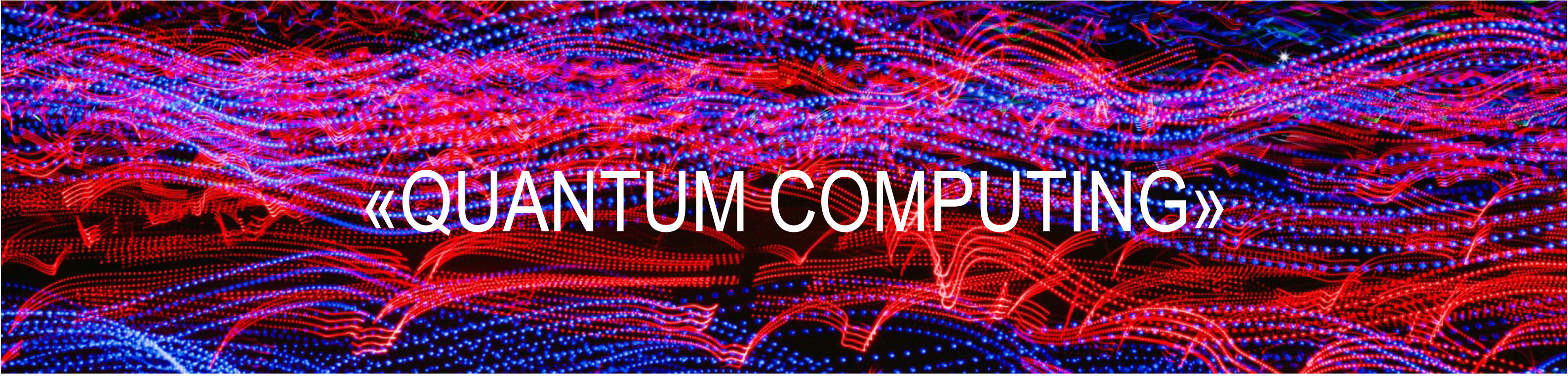
In this talk, I will introduce the basic concepts of quantum computation and offer an intuitive view of its potential and possible applications. I will discuss the main challenges associated with the physical realization of a quantum processor and point out the most promising approaches currently under investigation. Among these, semiconductor-based quantum bits attract increasing attention because they can leverage the well-establish technology of the microelectronics industry, which is an asset to the large-scale integration challenge. In Grenoble, the Quantum Silicon Group (https://www.quantumsilicon-grenoble.eu), gathering physicists and engineers from multiple institutions, is exploring this direction taking advantage of the existing large-scale fabrication platforms.

15:00: Cryptographie à l'Ere Quantique- **Renato Renner,** Prof. en Physique Théorique, Groupe Théorie de l'Information Quantique, ETH Zurich.

«Cryptography in the Age of Quantum Computing»

As major IT companies are starting to invest in quantum computing, it is high time that we think about the impacts of this novel technology. In my talk, I will focus on the opportunities and risks that it entails for data security. The threats are indeed not negligible, for quantum computers will render current cryptographic systems, such as RSA, completely insecure. Conversely, quantum technologies offer novel ways of encrypting data. The security of such quantum cryptographic schemes is based on the laws of physics, which means that they are virtually unbreakable

(les présentations se feront en anglais)
inscription obligatoire : qc-seminar@eurecom.fr avant le 22 Mai.



«QUANTUM COMPUTING»

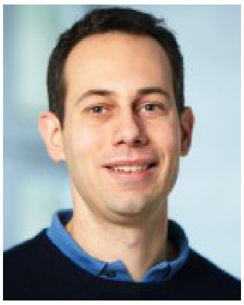
Will quantum computers soon be commercially available?
Should we get ready for the post-quantum era in information security?
In order to shed some light upon these questions,

EURECOM organizes a seminar on an introduction to **Quantum Computing and its potential impact on Computer Security,** intended for a general audience with computer science background, on **Thursday May 24, 2018. Amphitheatre Marconi, 2PM.**

Featuring two guest speakers:

Dr. Silvano De Franceschi
Expert in Quantum Nanoelectronics, Quantum Silicon, CEA-INAC, Grenoble.

Dr. Silvano De Franceschi is an expert in quantum nanoelectronics and experimental mesoscopic physics. He received his PhD in 1999 at the Scuola Normale Superiore of Pisa and, since 2007, he owns a position of staff scientist at the Institute for Nanoscience and Cryogenics. In 2005 he was awarded the Nicholas Kurti European Prize for his achievements in the field of quantum transport and, in particular, his works on the Kondo effect in quantum dots and on hybrid normal/superconductor nanostructures. He obtained an ERC Consolidator Grant (2012-2017), as well as a Chaire d'Excellence "Juniors" (2007-2011) and a Jeunes Chercheuses et Jeunes Chercheurs Grant (2008-2013) from the French Agency for Research. At present, his research activity is largely concentrating on the development of silicon-based devices for quantum information processing. He co-leads the Grenoble Quantum Silicon Group (http://quantumsilicon-grenoble.eu) and coordinates the European project MOS-QUITO (MOS-based Quantum Information TechnOlogy).



Prof. Dr. Renato Renner
Professor in Theoretical Physics, Quantum Information Theory Group, ETH Zurich.

Renato Renner was born on December 11, 1974, in Lucerne, Switzerland. He studied physics and did a PhD in theoretical computer science. In his doctoral thesis, he proposed the first complete proof of security of quantum cryptography. From 2005 to 2007, he was a postdoctoral research fellow in the Centre for Quantum Computation at the University of Cambridge, UK. He was appointed as a professor in theoretical physics at ETH Zurich in 2007, where he is heading the research group for Quantum Information Theory. Renner has received several prizes and grants, among them an ERC Starting Independent Researcher Grant in 2010. His current research interests are in the area of quantum information science, quantum thermodynamics, and the foundations of quantum physics.

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