ICTP | International Centre for Theoretical Physics
SAIFR | South American Institute for Fundamental Research

Campus of IFT-UNESP – São Paulo, Brazil

VANDERLEI BAGNATO
USP, Brazil &
Texas University, USA

MARCO CEREZO
Los Alamos National
Laboratory, USA

October 7 – 18, 2024

SECOND QUANTUM COMPUTING SCHOOL

DANIEL NINO
Xanadu, Canada

ANTONIO ZELAQUETT
UFF, Brazil

JUAN JOSÉ GARCÍA RIPOLL
QUINFOG-CSIC, Spain

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Palacky University Olomouc,
Czech Republic

Second Generation Quantum Technologies comprise solutions that directly benefit from quantum states of light or matter, such as superposition states, entangled states, and matter waves, to provide significant gains over their so-called "classical technologies" counterparts that do not directly use such fundamental properties of quantum theory. Within second-generation quantum technologies, quantum computing is the one that has received the most attention since there are predictions that indicate that, in the future, quantum computers will be able to solve complex problems quicker than today's largest supercomputers. But there are other quantum technologies that already have immediate applications with significant gains, for example quantum sensors as gravimeters and sensors applied to medicine, and cryptographic key distribution for secure communication systems.

These technologies have gigantic disruptive power, and the training of human resources in this area is essential to developing national and international programs. This school will provide hands-on courses covering basics and advanced concepts on second-generation quantum technologies including: quantum algorithm and quantum simulations, especially applied to chemistry, quantum machine learning, quantum sensors, quantum communication protocols, and different experimental platforms for those technologies, such as superconducting qubits, photonic systems and Bose-Einstein condensates.

There is no registration fee and limited funds are available for travel and local expenses.

Application deadline: August 3, 2024

Online application and more information:

ictp-saifr.org/sqcs2024

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