



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

**Campus of IFT-UNESP - São Paulo, Brasil**



**November 14-25, 2022**

**SCHOOL ON  
QUANTUM  
COMPUTATION**

**Seminar Speaker**  
**ENRIQUE SOLANO**  
 University of the Basque Country,  
 Spain/CEO QUANVIA e KIPU QUANTUM

**Minicourse**  
**EDUARDO DUZZIONI**  
 UFSC, Brazil  
*Quantum algorithms: from basics  
 to differential equations*

**Seminar Speaker**  
**FELIPE F. FANCHINI**  
 UNESP Bauru, Brazil

**Minicourse**  
**ASKERY CANABARRO**  
 UFRN, Brazil  
*Quantum Finance*

**Seminar Speaker**  
**RAFAEL CHAVES**  
 IPP/UFRN, Brazil

**Minicourse**  
**THOMAS MONZ**  
 University Innsbruck, Austria  
*Trapped Ion Quantum Computers*

**Minicourse**  
**FRANCISCO ROUXINOL**  
 UNICAMP, Brazil  
*Superconducting Qubits*

**Minicourse**  
**MARKUS MÜLLER\***  
 Forschungszentrum Jülich, Germany  
*Quantum error correction*

Quantum computing has become a major hot topic in recent years, leading several countries around the world to launch billion-dollar initiatives to develop research in this area. In addition to such initiatives, large multinational corporations such as Google, IBM, Amazon, Microsoft and many new startups have also started to invest large amounts of money both in the construction of quantum computers and new algorithms, which explore the fundamental concepts of Quantum Theory to promise extraordinary gains in information processing even over the most powerful classical supercomputers.

The main purpose of the present school is to provide short courses and lectures from the basics concepts to the state of the art on quantum computing: quantum algorithm efficiency, quantum complexity theory, quantum simulators, adiabatic quantum computing, quantum machine learning, and different architectures where quantum computing can be implemented, such as superconducting qubits, trapped ions, and photonics systems. The school will also offer short courses about the use of quantum computing in the cloud.

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

*\*to be confirmed*

**Application deadline: September 11, 2022**

**Online application and more information:**

**[www.ictp-saifr.org/qc2022/](http://www.ictp-saifr.org/qc2022/)**



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