



# Workshop on Next Generation Quantum Materials

Instituto de Física Teórica - UNESP, São Paulo, Brasil

April 4 - 8, 2016

This workshop will bring together researchers from the condensed matter and materials communities that simulate quantum materials using ab initio density functional based calculations and spin and multi-orbital Hamiltonian models. The discovery of high  $T_c$  cuprate superconductors three decades ago exposed limitations of methods used by both communities and motivated a wealth of developments aiming to address the multi-level complexity of these materials. Since then, effective ab initio methods for strongly correlated materials have been developed and Hamiltonian models have incorporated considerably more ingredients and complexity.

**Organizers:** L. Arrachea (U. Buenos Aires), R. Martin (Stanford U.), R. Wentzcovitch (U. Minnesota)

**Steering Committee:** L. Assali (USP), C. Balseiro (CNEA, Bariloche), N. Trivedi (Ohio State U.)

## Invited Speakers:

### *Superconductivity & Quantum Magnetism & Strongly Correlated Systems*

Chris Adriano\* (UNICAMP)  
Marcos Ávila (UFABC)  
Carlos Balseiro (CNEA, Bariloche)  
Alberto Camjayi (U. Buenos Aires)  
Nicholas Curro\* (U. California, Davis)  
José Hoyos (USP-São Carlos)  
Ana M. Llois (CONICET, Constituyentes)  
Eduardo Miranda (UNICAMP)  
Christiane Moraes-Smith\* (U. Utrecht)

### *Topological Insulators*

Armando Alijia\* (CNEA, Bariloche)  
Liliana Arrachea (U. Buenos Aires)  
Andrea Latgé (UFF)  
Nandini Trivedi\* (Ohio State U.)  
Gonzalo Usaj (CNEA, Bariloche)  
Jan Zaanen (U. Leiden)

### *Electronic Structure*

Mohit Randeria\* (Ohio State U.)  
Richard Scalettar (U. California, Davis)  
Eduardo G.M. da Silva (UNICAMP)  
Luis G.D. da Silva (USP)  
Marcelo B. da Silva Neto (UFRJ)  
Sandro Sorella (SISSA)  
Luis F. Torres (U. Córdoba)  
Veronica Vildosola (CONICET)

### *High Pressure studies of strongly correlated materials*

Dave Mao (Carnegie I.)  
Pascoal Pagliuso\* (UNICAMP)  
Sandro Scandolo (ICTP-Trieste)  
Renata M Wentzcovitch (U. Minnesota)

\*to be confirmed



#### ICTP-SAIFR Steering Committee:

Fernando Quevedo (chair)  
ICTP director  
Julio Cezar Durigan  
UNESP rector  
Carlos Brito Cruz  
FAPESP scientific director  
Jacob Palis  
Brasil Acad. of Sci. president  
Juan Maldacena  
Representing South America

#### ICTP-SAIFR Scientific Council:

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IAS, Princeton  
S. Randjbar-Daemi (coord.)  
ICTP vice-director  
Rogério Rosenfeld  
IFT-UNESP director  
Marcela Carena  
Fermilab, Batavia  
Marcel Clerc  
Univ. de Chile, Santiago  
Belita Koiller  
UFRJ, Rio de Janeiro  
Luis Lehner  
Perimeter Inst., Waterloo  
Gabriel Mindlin  
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Matias Zaldarriaga  
IAS, Princeton  
Barton Zwiebach  
MIT, Cambridge

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Executive secretary  
Lilia Faria  
Financial manager  
Rafael Mascarenhas  
Technical assistant

The application deadline is March 4, 2016

The online registration form and more information can be found at:

[www.ictp-saifr.org/quantum2016](http://www.ictp-saifr.org/quantum2016)