**Workshop on “Next Generation Quantum Materials”**

**ICTP/SAIFR - São Paulo, BR**

**April 4-8, 2016**

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| **Monday, April 4 – Session 1 – Chair: Liliana Arrachea** |
| 12:30 | 13:30 | **Registration** |
| 13:30 | 13:45 | Opening |
| 13:45 | 14:30 | Carlos Balseiro |  Photoelectrons Unveil Topological Transitions in Graphene like Systems |
| 14:30 | 15:15 | Tatiana Rappoport | Real-Space Calculation of the Conductivity Tensor for Disordered Topological Matter |
| 15:15 | 16:00 | Luis G. Dias da Silva | How to distinguish between Majorana and Kondo signals in a quantum dot-topological quantum wire junction? |
| 16:00 | 16:30 | COFFEE BREAK |
| 16:30 | 17:15 | Gonzalo Usaj | Floquet topological insulators:  materials engineering by driving |
| **Tuesday, April 5 – Session 2 – Chair: Carlos Balseiro** |
| 09:30 | 10:15 | Liliana Arrachea | Unveiling a crystalline topological insulator in a Weyl semi-metal with time-reversal symmetry |
| 10:15 | 11:00 | Ana Maria Lois | (New?) Low dimensional systems:  richness and diversity of their electronic properties |
| 11:00 | 11:15 | COFFEE BREAK |
| 11:15 | 12:00 | Alejandro Lobos | Haldane phase and magnetic end-states in 1D topological Kondo insulators |
| 12:00 | 12:45 | Eduardo Miranda | Emergent symmetries in disordered quantum spin chains |
| 12:45 | 14:45 | LUNCH |

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| **Session 3 – Chair: Eduardo Miranda** |
| 14:45 | 15:30 | Jan Kunes | Excitonic magnetism in models and materials |
| 15:30 | 16:15 | José A. Hoyos Neto | Criticality and quenched disorder: rare regions vs. Harris criterion |
| 16:15 | 17:00 | COFFEE BREAK |
| 17:00 | 17:45 | Caio Lewenkopf | Transport properties of three-dimensional Weyl semimetals near a Weyl node |
| 17:45 | 18:30 | Eric de Andrade | Magnetic moments and non-Fermi-liquid behavior in quasicrystals |
| **Wednesday, April 6 – Session 4 – Chair:**  |
|  9:30 | 10:15 | Eduardo Granado | Exotic magnetism in 5d ordered double perovskites |
| 10:15 | 11:00 | Pablo Cornaglia | Why are the Co-based 115 compounds different? The case study of GdMIn5 (M=Co,Rh,Ir) |
|  11:00 | 11:15 |  COFFEE BREAK |
|  11:15 | 12:00 | Veronica Vildosola | Spin density wave instabilities in the NbS2 monolayer |
|  12:00 | 12:45 | Marcos Ávila | Simplicity vs. complexity in thermoelectric quantum materials:  the cases of FeGa3 and RT2Zn20 |
|  12:45 | 14:00 |  LUNCH |
|  14:00 | 15:15 | Jan Zaanen | ***IFT-Colloquium:*** Holographic Duality, Strange Metals and Entanglement |
|   **Session 5 – Chair: Lucy V. C. Assaly** |
| 15:30 | 19:00 | **Poster Session** |
| 19:00 |   | **Social Dinner  (TBA)** |

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| **Thursday, April 7 – Session 6 – Chair: Renata Wentzcovich** |
| 09:30 | 10:15 | Richard Martin | Using idealized models and basic concepts to guide and interpret quantitative calculations |
| 10:15 | 11:00 |  Emanuel Gull | Solutions of the Two Dimensional Hubbard Model: Benchmarks and Results from a Wide Range of Numerical Algorithms |
| 11:00 | 11:15 | COFFEE BREAK |
| 11:15 | 12:00 |  Lucas Wagner | Ab initio quantum Monte Carlo for strongly correlated systems |
| 12:00 | 12:45 |  Francesco Sottile | Signatures of correlation: from excitons to satellites  |
| 12:45 | 14:45 | LUNCH |
|   **Session 7 – Chair: Emanuel Gull** |
|  14:45 | 15:30 | Pascoal Pagliuso | Combined external pressure and chemical substitution studies on BaFe2As2 single crystals |
|  15:30 | 16:15 |  Alberto Camjaya | GaTa4Se8: a new prototype of 3D Mott-Hubbard physics |
|  16:15 | 17:00 | COFFEE BREAK |
|  17:00 | 17:45 |  Sandro Scandolo | Magnetism and phase transitions in compressed Oxygen |
|  17:45 | 18:30 |  Renata Wentzcovitch | Spin crossover in iron bearing mantle minerals: some geophysical consequences |
|   **Friday, April 8 – Session 8 – Chair: Richard Martin** |
| 9:30 | 10:15 | Xiao-Jia Chen | Superconductivity in Complex Electronic Systems under Pressure |
| 10:15 | 11:00 | Philip Phillips | Unparticles and Anomalous Dimensions in the Strange Metal Phase of the Cuprates |
| 11:00 | 11:15 | COFFEE BREAK |
| 11:15 | 12:00 | Jan Zaanen | Strange metals, fermion signs and entanglement |
| 12:00 | 14:00 | LUNCH |
| 14:45 |   | **Departure** |