

MC21: Quantum Computers and Quantum Simulators for strongly-correlated condensed-matter problems: Applications and benchmarking

Organisateurs : T. Ayrat & B. Vermersch

Vendredi 26 août – 8h30- 12h

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| 8:30 - 9:00 | TBA |
| INVITÉ MC21-1 | Jens Eisert <i>Freie Universität Berlin</i> |
| 9:00 - 9:30 | Unsupervised learning universal critical phenomena via the intrinsic dimension |
| INVITÉ MC21-2 | <u>Tiago Mendes Santos</u> , Marcello Dalmonte, Adriano Angelone, Alex Rodriguez, Xhek Turkeshi <i>University of Augsburg</i> |
| 9:30 - 9:45 | Variational quantum simulation of valence-bond solids |
| MC21-3 | Daniel Huerga <i>Quantum Matter Institute, University of British Columbia, Vancouver V6T 1Z4, Canada</i> |
| 9:45 - 10:00 | A quantum advantage for density functional theory? |
| MC21-4 | <u>S. Yalouz</u> , B. Senjean, M. Saubanère <i>Laboratoire de Chimie Quantique, Institut de Chimie, CNRS/Université de Strasbourg, 4 rue Blaise Pascal, 67000 Strasbourg, France</i> |
| 10h-10h30 Coffee break | |
| 10:30 - 11:00 | Circuit QED implementation of the non-perturbative boundary sine-Gordon model |
| INVITÉ MC21-5 | <u>Nicolas Roch</u> , Sébastien Léger, Théo Sépulcre, Dorian Fraudet, Olivier Buisson, Cécile Naud, Wiebke Hasch-Guichard, Serge Florens, Izak Snymann and Denis Basko <i>Univ. Grenoble Alpes, CNRS, Grenoble INP, Institut Neel, 38000 Grenoble, France</i> |
| 11:00 - 11:30 | Realizing abelian and non-abelian topologically ordered states on a near-term quantum processor |
| INVITÉ MC21-6 | <u>Yu-Jie Liu</u> , Kirill Shtengel, Adam Smith, Michael Knapa, Frank Pollmann, and Google Quantum AI <i>Department of Physics, Technical University of Munich, 85748 Garching, Germany & Munich Center for Quantum Science and Technology (MCQST), Schellingstr. 4, 80799 München, Germany</i> |

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| <p>11:30 – 11:45</p> <p>MC21-7</p> | <p>Designing a Variational Quantum Eigensolver using rydberg atom arrays: application to small molecules</p> <p>Antoine Michel, Loic Henriet, Sebastian Grijalva, Antoine Browaeys, Thierry Lahaye, Christophe Domain</p> <p><i>Université Paris-Saclay, Institut d'Optique Graduate School, CNRS, Laboratoire Charles Fabry, 91127 Palaiseau Cedex, France & Electricité de France, EDF Recherche et Développement, Département Matériaux et Mécanique des Composants, Les Renardières, F-77250 Moret sur Loing, France</i></p> |
| <p>11:45 – 12:00</p> <p>MC21-8</p> | <p>Accessing ground-state and excited-state energies in a many-body system after symmetry restoration using quantum computers</p> <p>Edgar Andres Ruiz Guzman, Denis Lacroix</p> <p>ICJ Lab</p> |

Posters

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| <p>MC21-9</p> <p>(Séance du jeudi)</p> | <p>Generating massively entangled states with Rydberg-atom arrays</p> <p>Tommaso Roscilde , Fabio Mezzacapo, Tommaso Comparin</p> <p>Laboratoire de Physique, ENS de Lyon, 46 Allée d'Italie, 69007 Lyon, France</p> |
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