INSTITUT QUANTIQUE

COLLOQUE ANNUEL DE L'INSTITUT QUANTIQUE

Centre Culturel de l'Université de Sherbrooke

5 mai 2017

8 h 30 – 8 h 55 Café, beignes

9 h 00 – 9 h 05 Jacques Beauvais, *Mot de bienvenue*

Session I (président : André-Marie Tremblay)

9 h 10 – 9 h 25 Ion Garate, *Interplay between interactions and topology in Weyl semimetals.*

9 h 25 – 9 h 40 Jeffrey Quilliam, *Quantum oscillations in Weyl semimetals, seen through transport and ultrasound velocity measurements.*

9 h 40 – 9 h 55 Patrick Harvey-Collard, *A hybrid electron and nuclear spin two-qubit system based on tellurium donors in silicon.*

9 h 55 – 10 h 10 Julien Camirand Lemyre, *Optimization of micro-magnet arrays for Majorana fermions in a two dimensional electron gas.*

10 h 10 – 10 h 45 Pause café et affiches

Session II (président : David Poulin)

10 h 45 – 11 h 00 Jérôme Bourassa, *Longitudinal interaction between matter and light in circuit quantum electrodynamics.*

11 h 00 – 11 h 15 Dany Lachance-Quirion, *Readout of a single spin by modulating its longitudinal coupling to a cavity.*

11 h 15 – 11 h 30 Reza Nourafkan, *Quantum mechanics to the rescue of your refrigerator.*

11 h 30 – 11 h 45 Patrick Fournier, *Insulating oxides for room temperature magnetic refrigeration.*

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11 h 45 – 12 h 00 Yves Bérubé-Lauzière, *Superpositions of cavity Fock states with active measurement-based quantum feedback*.

12 h 00 – 13 h 30 Dîner et affiches

Session III (président: un postdoc de l'IQ?)

13 h 30 – 13 h 45 Bertrand Reulet, *Generation of non-gaussian electromagnetic microwave fields with a mesoscopic conductor.*

13 h 45 – 14 h 00 Serge Charlebois, *SIW superconducting resonators and ultrafast single-photon detectors.*

14 h 00 – 14 h 15 David Roy-Guay, *Qmag: a quantum device for the detection of magnetic field anomalies.*

14 h 15 – 14 h 45 Pause café et affiches.

Session IV (président: Ion Garate)

14 h 45 – 15 h 15 Sophie Rochette et Jérôme Bourassa, *Patenting for dummies*

15 h 15 – 15 h 30 Présentation du comité étudiant.

15 h 30 – 15 h 50 Alexandre Blais, *Appel à projets.*

15 h 50 – 17 h 30 Discussion libre et session d'affiches (avec des collations)

Liste d'affiches

A1) Pierre Rinkel: *Signatures of chiral anomaly in phonon dynamics.*

A2) Simon Bertrand: *Optical absorption in interacting and nonlinear Weyl semimetals.*

A3) Samuel Boutin*: Optimal control inspired algorithm for real-space optimization with application to Majorana wires.*

A4) Shaheen Acheche: *Effect of interactions in quantum oscillations.*

A5) Udson Cabral Mendes: *Squeezing and amplification with superconducting junctions.* -

A6) Denis Morris: *Photocarrier dynamics in Si and SiGe nanowires.*

A7) Francis Laliberté: *Probing the chiral anomaly in Weyl semimetal TaAs.*

A8) Marie-Ève Boulanger: *Heat transport in Kondo insulator SmB6: field-dependent magnetic excitations.*

A9) Amirreza Ataei: *titre à venir.*

A10) Mohamed Balli et Sabeur Mansouri: *Magnetocaloric effect in hexagonal and orthorhombic DyMnO3 crystals.*

A11) Patrice Lepage: *Fabrication and characterization of SIW superconductor resonators.*

A12) Yves Bérubé-Lauzière: *Superpositions of cavity Fock states with active measurement-based quantum feedback.*

A13) Simon Verret: *Density waves cause sub-gap structures but no pseudogap in superconducting cuprates*

A14) Patrick Harvey-Collard: *A hybrid electron and nuclear spin two-qubit system based on tellurium donors in silicon*

A15) Michel Pioro-Ladrière: *QMOS : Microelectronics platform for scalable quantum computing.*

A16) Agustín di Paolo: *Multilevel gate scheme for protected superconducting qubits.*

A17) Jérôme Bourassa: *Longitudinal interaction between matter and light in circuit quantum electrodynamics.*

A18) Shruti Puri: *Preparation and manipulation of cat states in Josephson Parametric amplifiers*