

Quantum Coherent Properties of Spins - III

December 20-22, 2010

University of Central Florida, Orlando FL

Student Union Building (Room: Key West AB, second floor)

WORKSHOP WEBPAGE: <http://pitp.physics.ubc.ca/confs/spins10>

Schedule of talks *(see next pages for times and titles)*

MONDAY	TUESDAY	WEDNESDAY
WELCOME		
Chair: Kent (SMMs-Structure) GANGOPADHYAY KLEMM DISCUSSION	Chair: Luis (SMMs-Symmetries) BEEDLE DEL BARCO DISCUSSION	Chair: Klemm (Magnetoreception) SPIVAK PROCOPIO (<i>flash-talk</i>) SOLOV'YOV DISCUSSION
coffee	coffee	coffee
Chair: Kent (SMMs-Lanthanides/Actinides) HILL RINEHART LUIS DISCUSSION	Chair: Luis (Collective Processes) STAMP ORTIZ KENT DISCUSSION	Chair: Klemm (Quantum Computing) AROMI MUCCILO DISCUSSION
		lunch at noon
lunch (Wackadoo's)	lunch (Wackadoo's)	
Chair: Ortiz (Transport) MARTINS LOTH ISHIGAMI DISCUSSION	Chair: Martins (Spin Coherence) TAKAHASHI COISH DOBROVITSKI DISCUSSION	
Coffee	coffee	
Chair: Ortiz (Molecules) ANDREEV BURIN DISCUSSION	Chair: Martins (Spin + harmonic modes) JAYICH CHIORESCU DISCUSSION	
	HOTEL	
Dinner (El Corral)	Dinner (del Barco's)	

Hotel: Holliday Inn, 12125 High Tech Ave., Orlando FL 32816. (407) 275-9000 (see map on last page)

Monday, December 20th

8:00am – 8:30am Welcome – Organizers

SESSION I: SINGLE-MOLECULE MAGNETS – Anisotropy and Lanthanides

Session chair: Andrew Kent

8:30am – 8:55am **Shruba Gangopadhyay** – University of Central Florida
Hubbard-U is necessary on ligand atom for predicting magnetic parameters

9:00am – 9:25am **Richard Klemm** – University of Central Florida
Single-ion and exchange anisotropy effects in small single molecule magnets

9:30am – 10:15am Open discussion

10:15am – 10:45am Coffee break

10:45am – 11:10am **Stephen Hill** – Florida State University/NHMFL
EPR Studies of Heavy Atom Molecule-Based Magnets

11:15am – 11:40am **Jeffrey Rinehart** – University of California - Berkeley
Influence of Spin on Intermolecular Interactions in f-element Single-Molecule Magnets

11:45am – 12:10pm **Fernando Luis** – Universidad de Zaragoza /ICMA
Spin-lattice relaxation of individual lanthanide ions via quantum tunneling

12:15pm – 1:00pm Open discussion

1:00pm – 2:15pm Lunch at “Wakacdoos”

SESSION II: NANOTRANSPORT and MOLECULES

Session chair: Gerardo Ortiz

2:15pm – 2:40pm **George Martins** – Oakland University - Michigan
Transport in Carbon Nanotubes: 2LSU(2) regime reveals subtle competition between Kondo and Intermediate Valence states

2:45pm – 3:10pm **Sebastian Loth** –IBM Research - Almaden
Quantum tunneling of magnetization in individual atoms

3:15pm – 3:40pm **Masahiro Ishigami** – University of Central Florida
Impurity scattering in Graphene

3:45pm – 4:30pm Open discussion

4:30pm – 5:00pm Coffee break

5:00pm – 5:25pm **Anton Andreev** – University of Washington
Separation of molecules by chirality using circularly polarized light

5:30pm – 5:55pm **Alexander Burin** – Tulane University
Semiclassical model for localization and vibrational dynamics in polyatomic molecules

6:00pm – 6:45pm Open discussion

7:00pm Dinner at “El Corral”

Tuesday, December 21st

SESSION III: SYMMETRIES and COLLECTIVE PROCESSES

Session chair: Kim Dunbar

- 8:00am – 8:25am **Christopher Beedle** – University of California – San Diego (*now at the NHMFL*)
High Symmetry and photoluminescent Molecular Magnets
- 8:25am – 8:55am **Enrique del Barco** – University of Central Florida
Asymmetric Berry Phase patterns in single-molecule magnets
- 9:00am – 9:45am Open discussion
- 9:45am – 10:15 am Coffee break
- 10:15am – 10:40am **Philip Stamp** – University of British Columbia/PITP
Quantum Vortices in Magnets
- 10:45am – 11:10am **Gerardo Ortiz** – Indiana University
Dynamical critical scaling in quantum phase transitions
- 11:15am – 11:40am **Andrew Kent** – New York University
Random-Field Ferromagnetism in Single Crystals of Molecular Magnet Mn₁₂-acetate
- 11:45am – 12:30pm Open discussion
- 12:30pm – 1:45pm Lunch at “Wakacdoos”

SESSION IV: SPIN COHERENCE and HARMONIC MODES

Session chair: George Martins

- 1:45pm – 2:10pm **Susumu Takahashi** – University of Southern California
Spin decoherence at high magnetic fields
- 2:15pm – 2:40pm **Bill Coish** – McGill University
Quantum dynamics of strongly coupled electron-nuclear spin systems
- 2:45pm – 3:10pm **Slava Dobrovitski** – Ames National Laboratory
Quantum dynamics and quantum control of spins in diamond
- 3:15pm – 4:00pm Open discussion
- 4:00pm – 4:30pm Coffee break
- 4:30pm – 4:55pm **Ania Jayich** – University of California – Santa Barbara
Coupling a spin qubit in diamond to the mechanical motion of a cantilever
- 5:00pm – 5:25pm **Irinel Chiorescu** – Florida State University/NHMFL
Magnetic strong coupling in a spin-photon system
- 5:30pm – 6:15pm Open discussion
- 6:15pm – 7:00pm Hotel
- 7:00pm Dinner at “del Barco’s”

Wednesday, December 22nd

SESSION V: MAGNETORECEPTION and QUANTUM COMPUTING

Session chair: Richard Klemm

- 8:00am – 8:25am **Boris Spivak** – University of Washington
Magnetic-field dependence of chemical reaction rates at high temperatures
- 8:30am – 8:40am **Maria Procopio** – University of California Irvine
Flash-talk Optimal nuclear spin environment for a radical-pair based magnetic compass
- 8:45am – 9:10am **Ilya Solov'yov** – Beckman Institute for Adv. Science and Technology
Vision-Based Magnetoreception System in Birds
- 9:15am – 10:00am Open discussion
- 10:00am – 10:30am Coffee break
- 10:30am – 10:55am **Guillem Aromi** – Universitat de Barcelona
Preparation of Weakly Coupled Spins within Molecules as 2qubit Quantum Gates
- 11:00am – 11:30am **Eduardo Mucciolo** – University of Central Florida
For how long is it possible to quantum compute?
- 11:30am – 12:15pm Open discussion
- 12:15pm Goodbye lunch at “Wakacadoo’s”
- After lunch Tour: new Physical Science Building (inaugurated on 17 December 2010)

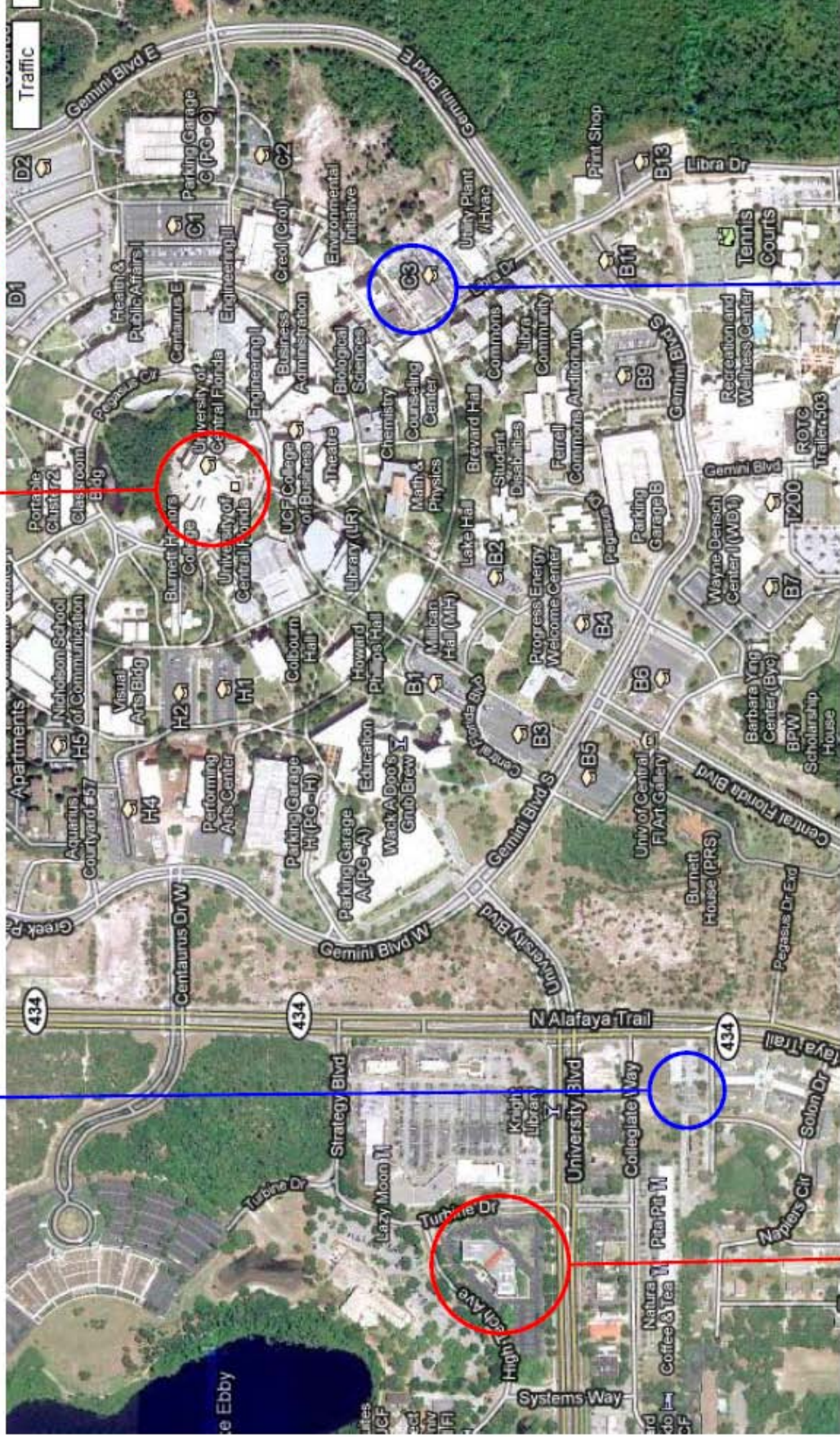
Some notes:

- A shuttle will transport you from and to the hotel every day. The bus will be waiting at the Holiday Inn entrance every day around 7:45am, and departing to UCF at 7:50am. Don't miss it, or you'll need to walk 10 minutes (see map in next page).
- Breakfast is complementary at the hotel buffet. Enjoy it.
- You can use your own laptop to give your presentation. We will also have a computer ready for you, if you wish. Bring your talks in PowerPoint and have them ready in a flash drive just in case. We will ask you for a copy of your talk to post it in the web of the workshop, only available to participants (password protected).

EL CORRAL (Restaurant)

STUDENT UNION -- (MEETING PLACE)

Room: Key West AB (second floor)



HOTEL: HOLIDAY INN

12125 High Tech Avenue, Orlando, FL (407) 275-9000

PHYSICAL SCIENCES BUILDING