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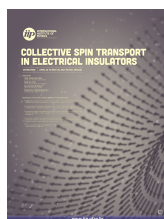
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Events

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(./media/posters/collective_spin.jpg)

Collective Spin Transport in Electrical Insulators

Workshop | Monday, April 24, 2017 - Friday, May 26, 2017

Directors:

- Jose Carlos Egues
- Daniel Loss
- Allan MacDonald
- Yaroslav Tserkovnyak

The field of spintronics has in recent years shifted steadily towards insulating materials, with a particular focus on magnetic-insulator-based heterostructures. These systems provide a natural hotbed for studying pure spin transport and dynamic phenomena, devoid of Ohmic currents. While allowing to finally lead the field towards the highly desired low-dissipation regimes, this development opens a range of fundamental questions that we used to structure our program. Central to our program are collective spin transport, bosonic condensation and superfluidity of magnons, topological order and dynamics in magnetic systems, quantum correlations and novel quantum heterostructures for spintronics. While some of these topics have been, to varying degree, addressed theoretically decades ago, the recent experimental progress on spin Hall and spin Seebeck phenomena, pump-probe and other laser-based techniques, magnetic force microscopy, imaging utilizing NV centers in diamond, to name just a few, is stimulating a burgeoning interest in this field. This long-term workshop will be first-of-a-kind, with a goal to rally the community behind the central questions that should guide our efforts in the years to come. This is a very fertile ground for research and particularly suited for researchers (junior and senior) who are considering new directions.

Format:

Search

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Clear

Schedule

- 2017
- 2016
- 2015
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- 2012
- 2011
- 2010

Clear

Popular

- Topological States of Matt

Our program consists of the following 4 weeks, (plus the 5th week, whose focus is to be determined in the process), each kicked off with an in-depth pedagogical tutorial, an experimental overview by a leading expert, and a focused mini-workshop composed of invited technical talks on Monday/Tuesday.

week 1: Collective hydrodynamics of spin and heat flows in magnetic heterostructures; nonequilibrium thermodynamics in magnetically-ordered media

week 2: Condensation of magnons, spontaneously coherent dynamics, and spin superfluidity in magnetic insulators; transport and dynamics in antiferromagnets

week 3: Topological order and topological transport in spin-textured media: Skyrmions; thermal Hall effect; magnonic edge modes; spin transport by topological excitations

week 4: Quantum correlations and kinetics of spin excitations; novel (spin-active/magnetic) quantum materials and phenomena; topological-insulator based heterostructures; superconducting spintronics

The rest of each week will be fully devoted to informal presentations by the participants, discussions, and collaborations. There should also be several poster sessions during the weeks of workshop. Leading players in these and closely related topics will be invited to participate (a full list of invited speakers will soon be available).

We strongly encourage applications from PhD students, PDs, and researchers in general -- specially those looking for a possible new research direction in the near future.

Registration Fee:

Students = R\$400,00 Brazilian reais.

Postdocs/Professionals = R\$800,00 Brazilian reais.

Registration fee: All the participants are expected to pay the registration fee. Members of the local community (institutions in Natal) are considered as free listeners and are exempt from paying the fee.

*Registration fee is accepted in cash only.

** Information about lodging will be posted soon.

Financial Support:

Available for those who qualify for financial help. You may apply for financial support when filling out your registration form (Registration page (../registration)).

For more information, please contact our events department at: events@iip.ufrn.br

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Date/Time	Speakers Name	Talk Title
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Tuesday

May 02, 2017 **REGISTRATION**

09:00 am -
10:00 am

Tuesday

Gerrit Bauer

- Quantum non-equilibrium phenomena
- Topological Effects in Ultra Cold Atoms
- New Trends in Integrable Models
- Strings at Dunes

May 02, 2017 Invited speaker

10:00 am - Tohoku University
11:00 am

• **Who's afraid of YIG?**

Tuesday

Andreas Rueckriegel

May 02, 2017 Invited speaker

11:00 am - Goethe University Frankfurt
11:30 am

• **Spin currents, spin torques, and the concept of spin superfluidity**

Tuesday

Benedetta Flebus

May 02, 2017 Invited speaker

11:30 am - Utrecht University
12:00 pm

• **Local thermomagnonic torques in two-fluid spin dynamics**

Tuesday

May 02, 2017 **Lunch Break**

12:00 pm -
02:00 pm

Tuesday

May 02, 2017 **Coffee Break**

03:10 pm -
03:40 pm

Wednesday

Axel Hoffmann

May 03, 2017 Invited speaker

10:00 am - Argonne National Laboratory
11:00 am

• **Spin Current Generation and Detection with Antiferromagnets**

Wednesday

Teruo Ono

May 03, 2017 Invited speaker

11:00 am - Kyoto University
11:30 am

• **Spin transport through antiferromagnets**

Wednesday

Toeno van der Sar

May 03, 2017 Invited speaker

11:30 am - Harvard University
12:00 pm

• **Probing spin waves using single electron spins**

Wednesday

May 03, 2017 **Lunch Break**

12:00 pm -
02:00 pm

Wednesday

Dominik Zumbuhl

May 03, 2017 Invited speaker

02:00 pm - University of Basel
03:00 pm

• **Spin-Orbit and Hyperfine Coupling in GaAs 2D and 0D Electron Systems**

Wednesday

May 03, 2017 **Coffee Break**

03:00 pm -
03:30 pm

Wednesday **Sergio Machado Rezende**

May 03, 2017 Invited speaker

03:00 pm - Federal University of
04:00 pm Pernambuco

• **Spin Seebeck effect and spin transport in magnetic metals and insulators**

Wednesday

May 03, 2017 **Official Picture**

04:00 pm -
04:05 pm

Wednesday

May 03, 2017 Coffee Break

04:05 pm -
04:30 pm

Saturday

May 06, 2017 EXCURSION TO PIPA BEACH

09:00 am -
05:00 pm

Tuesday

May 09, 2017 **Mircea Trif**

Invited speaker

- Dynamical Shiba states and bands in s-wave superconductors

10:00 am - Tsinghua University
10:30 am

Tuesday

May 09, 2017 **Christina Psaroudaki**

Invited speaker

- Quantum dynamics of skyrmions in chiral magnets

10:30 am - University of Basel
11:00 am

Tuesday

May 09, 2017 **Peter Stano**

Invited speaker

- Nuclear spin-induced localization of the edge states in two-dimensional topological insulators

11:00 am - CEMS/RIKEN
11:30 am

Tuesday

May 09, 2017 **Jaroslav Fabian**

Invited speaker

- Spin-orbit and exchange proximity effects in 2d materials

11:30 am - University of Regensburg
12:00 pm

Tuesday

May 09, 2017 Lunch break

12:00 pm -
02:00 pm

Tuesday

May 09, 2017 Coffee Break

04:00 pm -
04:30 pm

Wednesday

May 10, 2017 **Michael Flatte**

Invited speaker

- Voltage-driven magnetization control in topological insulator/magnetic insulator heterostructures

10:00 am - The University of Iowa
11:00 am

Wednesday

May 10, 2017 **John Schliemann**

Invited speaker

- Persistent Spin Textures in Semiconductor Nanostructures

11:00 am - University of Regensburg
11:30 am

Wednesday

May 10, 2017 **Ryuichi Shindou**

Invited speaker

- Topological Magnons

11:30 am - Peking University
12:00 pm

Wednesday

May 10, 2017 Lunch break

12:00 pm -
02:00 pm

Wednesday**May 10, 2017** **Coffee Break**04:00 pm -
04:30 pm**Monday****So Takei****May 15, 2017** Invited speaker11:00 am - Queens College
11:30 am

- **Prediction for spin current and its noise generated across biased quantum spin chains**

Monday**Luis Gregório G. Dias da Silva****May 15, 2017** Invited speaker11:30 am - University of Sao Paulo - USP
12:00 pm

- **Majorana vs Kondo signatures in a quantum dot-topological quantum wire junction.**

Monday**May 15, 2017** **Lunch break**12:00 pm -
02:00 pm**Monday****Shuichi Murakami****May 15, 2017** Invited speaker02:00 pm - Tokyo Institute of Technology
03:00 pm

- **Thermal Hall effect and Berry curvature of magnons**

Monday**May 15, 2017** **Coffee Break**03:00 pm -
03:30 pm**Tuesday****Hector Ochoa****May 16, 2017** Invited speaker09:30 am - UC Los Angeles
10:00 am

- **Spin-transfer drag driven by skyrmion dynamics**

Tuesday**Gerson Ferreira Junior****May 16, 2017** Invited speaker10:00 am - Federal University of Uberlandia
10:30 am

- **Topological nonsymmorphic ribbons out of symmorphic bulk**

Tuesday**Silas Hoffman****May 16, 2017** Invited speaker10:30 am - University of Basel
11:00 am

- **Spin-dependent coupling between quantum dots and topological quantum wires**

Tuesday**Suk Bum Chung****May 16, 2017** Invited speaker11:00 am - Seoul National University
12:00 pm

- **Spin supercurrent in Sr₂RuO₄ superconductor**

Tuesday**May 16, 2017** **Lunch break**12:00 pm -
02:00 pm**Tuesday****May 16, 2017** **Coffee Break**03:00 pm -
03:30 pm**Monday**

May 22, 2017 **Alexander Khaetskii**
Invited speaker
10:00 am -
11:00 am SUNY at Buffalo

- Giant edge spin accumulation in a symmetric quantum well with two subbands

Monday
May 22, 2017 **Martin Wackerl**
Participant

11:00 am -
11:30 am University of Regensburg

- Driven Hofstadter Butterflies

Monday
May 22, 2017 **Oleg Tretiakov**
Invited speaker

11:30 am -
12:00 pm Tohoku University

- Theory of Skyrmion Hall Effect

Monday

May 22, 2017 **Lunch break**

12:00 pm -
02:00 pm

Monday

May 22, 2017 **Coffee Break**

03:00 pm -
03:30 pm

Tuesday

May 23, 2017 **Takis Kontos**
Invited speaker

10:00 am -
11:00 am Laboratoire Pierre Aigrain

- Synthetic spin orbit interaction for Majorana devices

Tuesday

May 23, 2017 **Denis Ricardo Candido**
Participant

11:00 am -
11:30 am USP - SÃO Carlos

- Protected helical edge states in non-topological cylindrical quantum dots

Tuesday

May 23, 2017 **Lunch break**

12:00 pm -
02:00 pm

Tuesday

May 23, 2017 **Coffee Break**

04:00 pm -
04:30 pm

Tuesday

May 23, 2017 **Marcia Barbosa**
Invited speaker

04:30 pm -
05:30 pm Federal University of Rio Grande do Sul

- COLLOQUIUM: Water, From the Ice Age to the Carbon Nanotubes



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