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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 magneticinsulator-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. Search

Contact Us For more info (contact)

Symposiums
School and Workshop
Minicourse
Mini-workshop



Topological States of Matte

Format:

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

 Tuesday
 REGISTRATION
 Second State

 09:00 am - 10:00 am
 Second State
 Second State

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	Who's afraid of YIG?
10:00 am - 11:00 am	Tohoku Univerisity	
Tuesday	Andreas Rueckriegel	
May 02, 2017 11:00 am - 11:30 am	Invited speaker Goethe University Frankfurt	Spin currents, spin torques, and the concept of spin superfluidity
Tuesday May 02, 2017	Benedetta Flebus Invited speaker	
11:30 am - 12:00 pm	Utrecht University	 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	Spin Current Generation and Detection with Antiferromagnets
10:00 am - 11:00 am	Argonne National Laboratory	
Wednesday	Teruo Ono	
May 03, 2017	Invited speaker	Spin transport through antiferromagnets
11:00 am - 11:30 am	Kyoto University	
Wednesday May 03, 2017	Toeno van der Sar Invited speaker	
11:30 am - 12:00 pm	Harvard University	Probing spin waves using single electron spins
-		
Wednesday May 03, 2017		
12:00 pm - 02:00 pm	Lunch Break	
Wednesday	Dominik Zumbuhl	
May 03, 2017	Dominik Zumbuhl Invited speaker	- Shin Orbit and Humarfina Coursiling in Co.As 0D and 0D Electron Courts
02:00 pm - 03:00 pm	University of Basel	 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 May 03, 2017	Sergio Machado Rezende Invited speaker	
May 03, 2017 03:00 pm - 04:00 pm	Federal Univerisity of 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 BEA	сн
09:00 am - 05:00 pm		
Tuesday	Mircea Trif	
May 09, 2017	Invited speaker	Dynamical Shiba states and bands in s-wave superconductors
10:00 am - 10:30 am	Tsinghua University	
Tuesday	Christina Psaroudaki	
May 09, 2017	Invited speaker	Quantum dynamics of skyrmions in chiral magnets
10:30 am - 11:00 am	University of Basel	
Tuesday	Peter Stano	
May 09, 2017	Invited speaker	Nuclear spin-induced localization of the edge states in two-dimensiona topological insulators
11:00 am - 11:30 am	CEMS/RIKEN	topological insulators
Tuesday	Jaroslav Fabian	
May 09, 2017	Invited speaker	Spin-orbit and exchange proximity effects in 2d materials
11:30 am - 12:00 pm	University of Regensburg	
Tuesday		
May 09, 2017	Lunch break	
12:00 pm - 02:00 pm		
Tuesday		
May 09, 2017	Coffee Break	
04:00 pm - 04:30 pm	CSHOO BIOUR	
Wednesdav	Michael Flatte	
May 10, 2017	Nichael Flatte Invited speaker	Voltage-driven magnetization control in topological insulator/magnetic
10:00 am - 11:00 am	The University of Iowa	insulator heterostructures
Wednesdav	John Schliemann	
May 10, 2017	John Schliemann Invited speaker	
11:00 am - 11:30 am	University of Regensburg	Persistent Spin Textures in Semiconductor Nanostructures
Wednesday	·	
May 10, 2017	Ryuichi Shindou Invited speaker	
11:30 am - 12:00 pm	Peking University	Topological Magnons
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 May 15, 2017	So Takei Invited speaker	Prediction for spin current and its noise generated across biased quantum	
11:00 am - 11:30 am	Queens College	Prediction for spin current and its noise generated across biased quantum spin chains	
Monday May 15, 2017	Luis Gregório G. Dias da Silva Invited speaker	 Majorana vs Kondo signatures in a quantum dot-topological quantum wire junction. 	
11:30 am - 12:00 pm	University of Sao Paulo - USP		
Monday			
May 15, 2017	Lunch break		
12:00 pm - 02:00 pm			
Monday May 15, 2017	Shuichi Murakami Invited speaker		
02:00 pm - 03:00 pm	Tokyo Institute of Technology	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 speaker	Spin-transfer drag driven by skyrmion dynamics	
09:30 am - 10:00 am	UC Los Angeles		
Tuesday May 16, 2017	Gerson Ferreira Junior Invited speaker		
10:00 am - 10:30 am	Federal University of Uberlandia	 Topological nonsymmorphic ribbons out of symmorphic bulk 	
Tuesday May 16, 2017	Silas Hoffman Invited speaker	Spin-dependent coupling between quantum dots and topological quantum	
10:30 am - 11:00 am	University of Basel	wires	
Tuesday May 16, 2017	Suk Bum Chung Invited speaker		
11:00 am - 12:00 pm	Seoul National University	 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			

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