

## Wednesday, 23 October 2024

10:00 – 18:00

- 10:00 **Registration formalities** 4h
- 14:00 **Opening Session** 30'
- 14:30 **Opening Plenary: Calculating Electronic and Magnetic Properties: A 30-Year retrospective on research in Low Dimensional and Complex Systems** 45'  
Speaker: Ana María LLOIS (Instituto de Nanociencia y Nanotecnología, CNEA-CONICET, Argentina)
- 15:15 **Opening Plenary: Ab-Initio simulations of equilibrium and out-of-equilibrium phenomena in complex materials: combining High-Performance computational tools with advanced theoretical approaches** 45'  
Speaker: Andrea MARINI (Istituto di Struttura della Materia, National Research Council, Italy)
- 16:00 **Coffee Break** 30'
- 16:30 **Opening Plenary: On the Physical Response of Layered Materials Exfoliated in Liquid Phase: Evidence of Functional Groups and Size-Dependent Features** 45'  
Speaker: Yenny HERNÁNDEZ (Universidad de los Andes, Colombia)
- 17:15 **Opening Plenary: Materials design and ab initio modeling of novel materials for optoelectronics** 45'  
Speaker: Bruno CUCCO (Center for Quantum Materials Engineering, The University of Texas at Austin, United States)

## Thursday, 24 October 2024

08:45 – 18:30

- 08:45 **Topic Plenary: Quantum phase transitions in strongly disordered topological insulators: A coordinate-space analysis** 45'  
Speaker: Caio LEWENKOPF (Universidade Federal Fluminense, Brazil)

	<b>ROOM 1</b>	<b>ROOM 2</b>
09:30	<b>Topic Talk 1.1: Room temperature multiferroicity in solid solutions of transition metal dichalcogenides</b> 30' Speaker: Paula GIRALDO-GALLO (Universidad de Los Andes, Colombia)	<b>Topic Talk 2.1: Engineering adiabatic pumping in nanostructures</b> 30' Speaker: José Eduardo BARRIOS VARGAS (UNAM, Mexico)

- 10:00 **Coffee Break** 30'
- 10:30 **Poster Parade** 30'

	<b>ROOM 1</b>	<b>ROOM 2</b>
11:00	<b>Topic Talk 1.2: Electronic localization and its fragility in rotated graphene layers 30'</b> Speaker: Eric SUÁREZ MORELL (Universidad Técnica Federico Santa María, Chile)	<b>Topic Talk 2.2: Transport and magnetoresistance in disordered ferromagnetic superlattices on two-dimensional materials 30'</b> Speaker: Outmane OUBRAM (Universidad Autónoma Del Estado de Morelos, Mexico)
11:30	<b>Contributed Talk 1.1: Hydrogen production using Co-Ni based electrodes obtained from wasted NiMH batteries 15'</b> Speaker: Karina PULIDO DE LA CRUZ (Instituto Politécnico Nacional, Mexico)	<b>Contributed Talk 2.1: Enhancing exciton localization in two-dimensional semiconductors through dielectric environment modification 15'</b> Speaker: Kelly Yohana MUÑOZ GOMEZ (Universidad Pedagógica y Tecnológica de Colombia, Colombia)
11:45	<b>Contributed Talk 1.2: Synthesis of iron nanoparticles through an ultrasonically assisted coprecipitation method 15'</b> Speaker: Ana Melissa GONZÁLEZ MOJICA (Universidad Antonio Nariño, Colombia)	<b>Contributed Talk 2.2: CuNbS3: A First-Principles Exploration of a Potential Photovoltaic Material 15'</b> Speaker: Catalina RUIZ VERGARA (Universidad Andrés Bello, Chile)
12:00	<b>Contributed Talk 1.3: Non-spherical atomic effective pseudopotentials applied to the study of the electronic structure of Si nanowires 15'</b> Speaker: Jairo Ricardo CARDENAS (Universidad del Atlántico, Colombia)	<b>Contributed Talk 2.3: Novel Kagome KMn3Sb5 metal: Chiral magnetism, lattice dynamics, and anomalous Hall conductivity 15'</b> Speaker: Andrés Camilo GARCIA CASTRO (Universidad Industrial de Santander, Colombia)
12:15	<b>Contributed Talk 1.4: Adsorption of CO2 in graphene oxide-based semiconductor systems for photocatalytic purposes 15'</b> Speaker: José FERNÁNDEZ ADELL (Pontificia Universidad Católica de Chile, Chile)	<b>Contributed Talk 2.4: Control of the spin-polarized conductance in a bilayered 2D magnetic CrI3-based device 15'</b> Speaker: Carlos Eduardo ARDILA GUTIERREZ (Universidad Industrial de Santander, Colombia)

12:30 **Lunch 1h30'**

14:00 **Topic Plenary: Imaging the itinerant-to-localised transmutation of electrons across the metal-to-insulator transition 45'**  
Speaker: Andrés SANTANDER SYRO (ISMO, Université Paris-Saclay, Orsay, France)

	<b>ROOM 1</b>	<b>ROOM 2</b>
14:45	<b>Topic Talk 3.1: Strategic co-substitutions to increase magnetization in pristine AlN monolayer 30'</b> Speaker: César ORTEGA (Universidad de Córdoba, Colombia)	<b>Topic Talk 4.1: Modeling Bi-based layered superconductors: electronic properties 30'</b> Speaker: Cecilia VENTURA (Centro Atómico Bariloche (CONICET) & UNRN, Argentina)
15:15	<b>Contributed Talk 3.1: Catalytic activity and sensing properties of the M-MOF74 (M=Mn, Fe, Co) Metal-Organic Frameworks 15'</b> Speaker: Victor HOYOS SINCHI (Universidad Andrés Bello, Chile)	<b>Contributed Talk 4.1: discontinuous, compensation and hysteresis phenomena in a high-spin Ising-type ferrimagnet: S=3/ Q=7/2 15'</b> Speaker: Nicolás DE LA ESPRIELLA VÉLEZ (Universidad de Córdoba, Colombia)

15:30	<b>Contributed Talk 3.2: Efficacy of vanadium oxide nanoparticles doped with reduced graphene oxide in the photocatalytic degradation of methylene blue 15'</b> Speaker: Leydi Julieta CÁRDENAS FLECHAS (Universidad de América, Colombia)	<b>Contributed Talk 4.2: Formation, generation and stability of magnetic vortex in individual Co85Ni15 nanowires with transversal magnetic anisotropy 15'</b> Speaker: Nicolás BARRIOS PIZO (Universidad del Valle, Colombia)
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15:45 **Coffee Break 30'**

	<b>ROOM 1</b>	<b>ROOM 2</b>
16:15	<b>Topic Talk 3.2: Lithium isotopic separation via electrochemical techniques: the role of electronic structure 30'</b> Speaker: Verónica VILDOSOLA (CONICET-CNEA (CAC), Buenos Aires)	<b>Topic Talk 4.2: Accelerating the discovery of 2D multiferroics 30'</b> Speaker: Juan Manuel FLOREZ URIBE (Universidad Técnica Federico Santa María, Chile)
16:45	<b>Contributed Talk 3.3: Adsorption and diffusion of lithium, sodium, gallium, and sulfur atoms on the GaS monolayer 15'</b> Speaker: Raúl MELÉNDEZ (Universidad de Córdoba, Colombia)	<b>Contributed Talk 4.3: Pairs and stripes phases in an antiferromagnet within the extended Hubbard model 15'</b> Speaker: Uriel Alberto DIAZ REYNOSO (UNAM, Mexico)
17:00	<b>Contributed Talk 3.4: Effect of defects on the energetics and electronic properties of the (4x4) AlN/(5x5) graphene heterobilayer 15'</b> Speaker: Ronald LARA (Universidad de Córdoba, Colombia)	<b>Contributed Talk 4.4: Study of effect of inclusion of multiwalled carbon nanotubes (MWCNTs) in structural and electrical properties of samples of YBa2Cu3O7-<math>\delta</math> (YBCO) 15'</b> Speaker: Carlos PIÑEIRO (Universidad del Valle, Colombia)

17:15 **Poster Presentation 1h15'**

Friday, 25 October 2024

08:45 – 20:00

08:45 **Topic Plenary: To (boldly) measure where no one has measured before: Possibilities for Condensed Matter in Pulsed Magnetic Fields 45'**  
Speaker: Boris Alfredo MAIOROV (Los Alamos National Laboratory, United States)

	<b>ROOM 1</b>	<b>ROOM 2</b>
09:30	<b>Topic Talk 3.3: Nanostructured Titanates: unveiling their unique functional properties 30'</b> Speaker: Ricardo FACCIO (Universidad de la República, Uruguay)	<b>Topic Talk 4.3: Altermagnetism: A novel magnetic phase 30'</b> Speaker: Rafael GONZALEZ-HERNANDEZ (Universidad del Norte, Colombia)

10:00 **Coffee Break 30'**

10:30 **Special Topic Plenary: Understanding the magnetic behavior of Manganese 30'**  
Speaker: José Luis MORÁN LÓPEZ (Instituto Potosino de Investigación Científica y Tecnológica, Mexico)

	<b>ROOM 1</b>	<b>ROOM 2</b>
11:00	<b>Topic Talk 3.4: Electronic Interactions on Moiré 2D van der Waals Heterostructures 30'</b> Speaker: Ana Cecilia NOGUEZ GARRIDO (UNAM, Mexico)	<b>Topic Talk 4.4: Quantum oscillations 30'</b> Speaker: José Carlos EGUES (Instituto de Física de São Carlos, Brazil)
11:30	<b>Contributed Talk 3.5: Electronic flat-bands on twisted bilayer Penrose quasicrystals 15'</b> Speaker: Ernesto HUIPE DOMRATCHEVA (UNAM, Mexico)	<b>Contributed Talk 4.5: Magnetic properties of Sr<sub>2-x</sub>Ce<sub>x</sub>Fe<sub>1+x/2</sub>Mo<sub>1-x/2</sub>O<sub>6</sub> double perovskite system 15'</b> Speaker: Diana Litzajaya GARCÍA-RUIZ (UNAM, Mexico)
11:45	<b>Contributed Talk 3.6: Stability of point defects in metastable Cu<sub>3</sub>N: Finite-size correction methods 15'</b> Speaker: Abdul Mauricio REYES USUGA (Universidad Andres Bello, Chile)	<b>Contributed Talk 4.6: Order-disorder dynamic phase transition in a magnetite nanoparticle and its relationship with magnetic hyperthermia: A micromagnetic approach 15'</b> Speaker: Johans RESTREPO (Universidad de Antioquia, Colombia)
12:00	<b>Contributed Talk 3.7: Ab-initio study of topological properties of A<sub>3</sub>BO Antiperovskites 15'</b> Speaker: Joan Sebastián IBAÑEZ SOTELO (Universidad Nacional de Colombia, Colombia)	<b>Contributed Talk 4.7: Design and development of novel perovskite-like materials with spintronic properties 15'</b> Speaker: Jairo ROA ROJAS (Universidad Nacional de Colombia, Colombia)
12:15	<b>Contributed Talk 3.8: High field magnetotransport measurements of the topological semi-metal and charge density wave compound TaTe<sub>4</sub> 15'</b> Speaker: Diego Felipe SILVERA VEGA (Universidad de Los Andes, Colombia)	<b>Contributed Talk 4.8: Local symmetry of Co, in Co-Doped ZnO Nanocrystals 15'</b> Speaker: Ovidio ALMANZA (Universidad Nacional de Colombia, Colombia)

12:30 **Lunch 1h30'**

14:00 **Topic Plenary: GaSb-based Semiconductors for Optoelectronic Device Applications in the Mid-Infrared Spectral Region 45'**  
Speaker: Julio MENDOZA ALVAREZ (CINVESTAV-IPN, Mexico)

	<b>ROOM 1</b>	<b>ROOM 2</b>
14:45	<b>Topic Talk 1.3: Atomically thin current pathways in graphene through Kekulé-O engineering 30'</b> Speaker: Yonatan BETANCUR OCAMPO (UNAM, Mexico)	<b>Topic Talk 2.3: On the high-temperature phase transition of Rb<sub>3</sub>H(SeO<sub>4</sub>)<sub>2</sub>: A polymorphic-superprotonic phase transition? 30'</b> Speaker: Ever ORTIZ MUÑOZ (Universidad del Atlántico, Colombia)
15:15	<b>Contributed Talk 1.5: Optimization of photovoltaic cell properties and efficiency by incorporating functional groups into <math>\pi</math>-conjugated triphenylamine molecules 15'</b> Speaker: Jonathan ROMERO ATENCIO (Universidad del Atlántico, Colombia)	<b>Contributed Talk 2.5: Electrical analysis of Caseinate-Borax biofilms 15'</b> Speaker: Nayda Patricia ARIAS DUQUE (Universidad de Sucre, Colombia)
15:30	<b>Contributed Talk 1.6: Decoherence effects on quantum transport through topological domain walls 15'</b> Speaker: Ricardo Yael DÍAZ BONIFAZ (UNAM, Mexico)	<b>Contributed Talk 2.6: Solid-state mechanisms enhancing fire resistance in niobium and boron alloyed structural steels 15'</b> Speaker: Edwan Anderson ARIZA ECHEVERRI (Universidad del Magdalena, Colombia)

15:45 **Coffee Break 30'**

	<b>ROOM 1</b>	<b>ROOM 2</b>
16:15	<b>Topic Talk 1.4: Designing a “perfect” porphyrin molecule for the Mechanically Controllable Break Junction Experiments 30'</b> Speaker: Diana DULIC (Universidad de Chile, Chile)	<b>Topic Talk 2.4: Virtual Worlds, Real Solutions: Multiscale Materials Design for Global Challenges 30'</b> Speaker: Caetano MIRANDA (Instituto de Física, USP, Brazil)
16:45	<b>Contributed Talk 1.7: Study and optimization of electronic and structural properties of two-dimensional materials (MXenes) for energy generation and storage through first-principles calculations 15'</b> Speaker: Nicolás FORERO (Universidad de la Frontera, Chile)	<b>Contributed Talk 2.7: Propagation of electromagnetic waves through a bi-periodic 1D dielectric-graphene photonic crystal 15'</b> Speaker: Jesús MADRIGAL-MELCHOR (Universidad Autónoma de Zacatecas, Mexico)
17:00	<b>Contributed Talk 1.8: Ferroelectric switching in monolayer WSe<sub>2</sub> via concurrent antisite and vacancy defects. A DFT study.15'</b> Speaker: Camilo ESPEJO (Universidad del Norte, Colombia)	<b>Contributed Talk 2.8: Enantiospecific electron transport in chiral-modified molecular junctions 15'</b> Speaker: Omar HERNÁNDEZ MONTES (UNAM, Mexico)

17:15 **Poster Presentation 45'**

18:00 **Social Activity 2h**

**Saturday, 26 October 2024**

**09:00 – 12:30**

09:00 **Navigating Peer Review: Critical Tips for Authors 1h**  
Speaker: Luis E. F. FOA TORRES (Universidad de Chile, Chile)

10:00 **Coffee Break 30'**

10:30 **Promoting science exchange through networks 1h**  
Panelists: Nayda Patricia ARIAS DUQUE (Universidad de Sucre, Colombia), Oracio NAVARRO (UNAM, Mexico), Javier MONTOYA (Universidad de Cartagena, Colombia), José Luis MORÁN (Instituto Potosino de Investigación Científica y Tecnológica, Mexico)

11:30 **SLAFES XXVI venue reveal 30'**  
Chair: Javier MONTOYA (Universidad de Cartagena, Colombia)

12:00 **Closing remarks 30'**