2do Taller Internacional QTECNOS

Nano & Quantum Workshop 2024

Nano & Quantum Workshop 2024-General Program

Star	End	25-nov-24	26-nov-24	27-nov-24	28-nov-24	29-nov-24
8:00	8:30	REGISTRATION FORMALITIES				
8:30	9:00					NATIONAL AVIARY VISIT
9:00	9:15	Opening Session	Topic Plenary -Prof. Joakim Bergli	Topic Plenary -Prof. Pablo Rivera Riofano	Topic plenary- Dr. David Rivas	
9:15	9:30					
9:30	9:45	Opening Plenary -Prof. Morten Hjorth-Jensen				
9:45	10:00		Oral contribution 2.1	Oral contribution 3.1	Oral contribution 4.1	
10:00	10:15					
10:15	10:45	COFFEE BREAK	COFFEE BREAK	COFFEE BREAK	COFFEE BREAK	
10:45	11:30	Opening plenary- Prof. Angela Guzman	Topic Plenary -Prof. John Henry Reina	Topic plenary -Prof. Juan Carlos Gomez	Topic Plenary -Prof. Omar Calderón	
11:30	12:00	Oral contribution 1.1	Oral contribution 2.2	Oral contribution 3.2	Oral contribution 4.2	
12:00	14:00	LUNCH TIME	LUNCH TIME	LUNCH TIME	LUNCH TIME	LUNCH TIME
14:00	14:30	Oral contribution 1.2	Oral contribution 2.3	Oral contribution 3.3	Oral contribution 4.3	BARU BEACH VISIT
14:30	15:00	Oral contribution 1.3	Oral contribution 2.4	Oral contribution 3.4	Oral contribution 4.4	
15:00	15:30	Oral contribution 1.4	Oral contribution 2.5	Oral contribution 3.5	Oral contribution 4.5	
15:30	16:00	Oral contribution 1.5	Oral contribution 2.6	Oral contribution 3.6	Academic Networks	
16:00	16:30	COFFEE BREAK	COFFEE BREAK	COFFEE BREAK	COFFEE BREAK	
16:30	18:00	FORTIFIED TOWN TOUR	POSTER SECCIÓN	BOAT TRIP ON THE BAY	POSTER SECCIÓN	

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Nano & Quantum Workshop 2024

Monday, 25 November 2024

Star	End	
8:00	9:00	Registration Formalities
9:00	9:30	Opening session
9:30	10:15	Opening Plenary. *Deep learning applied to quantum mechanical many-body problems* Prof. Morten Hjorth-Jensen. Department of Physics and Center for Computing in Science Education, University of Oslo (Norway)
10:15	10:45	**Coffee Break**
10:45	11:30	Opening Plenary. *Quantum Entanglement and the Era of New Quantum Technologies* Prof. Angela Guzmán. Academia Colombiana de Ciencias Exactas, Físicas y Naturales (Colombia)
11:30	12:00	Oral contribution 1.1. *Characterization of Entanglement in a Simulated Optical Network* Jhoan Eusse. Grupo de Física Atómica y Molecular. Universidad de Antioquia (Colombia)
12:00	14:00	**Lunch Time**
14:00	14:30	Oral contribution 1.2 *Quantum State Engineering Experiments with Mesoscopic Optical Fields* Dr. Kishore Thapliyal. Department of Physics. University of Oslo (Norway)
14:30	15:00	Oral contribution 1.3 *Description of an Optical matrix multiplier with the aim of application in All Optical Neural Networks* Andres Felipe Arias Velasquez. Universidad de los Andes (Colombia)
15:00	15:30	Oral contribution 1.4 *Understanding and using the Orbital Angular Momentum of Light for quantum computation with Qudits* Juan Carlos Rojas Velásquez. Universidad de los Andes (Colombia)
15:30	16:00	Oral contribution 1.5 *Optical responses in biofunctionalized spherical semiconductor quantum dots* Angie Liseth Prada Urrea. Universidad EIA (Colombia)
16:00	16:30	**Coffee Break**
16:30	17:30	**FORTIFIED TOWN TOUR**

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Nano & Quantum Workshop 2024

Tuesday, 26 November 2024

Star	End	
9:00	9:45	Plenary. *Decoherence by low frequency noise and exceptional points of non-Hermitian matrices* Prof. Joakim Bergli. Department of Physics and Center for Computing in Science Education, University of Oslo (Norway)
9:45	10:15	Oral contribution 2.1. *Quantum error correction and the surface code* Delphine Martres and Jesper Lind-Olsen. University of Oslo (Norway)
10:15	10:45	**Coffee Break**
10:45	11:30	Plenary. *Quantum coherence control and decoherence: a neural network approach* Prof. John Henry Reina. Centre for Bioinformatics and Photonics (CIBioFi). Universidad del Valle (Colombia)
11:30	12:00	Oral contribution 2.2 *Cold atom-atom-ion three-body recombination assisted by radiofrequency trap* Ana Carolina Noguera Velasco. Centre for Bioinformatics and Photonics (CIBioFi). Universidad del Valle (Colombia)
12:00	14:00	**Lunch Time**
14:00	14:30	Oral contribution 2.3 *Harnessing Nth Root Gates for Energy Storage* Dr. Marcela Herrera. Universidad Autónoma de Occidente (Colombia)
14:30	15:00	Oral contribution 2.4 *Development of Molecular Logic Gates Based on Symmetrical Tetra (Hydrazones) with Two Arms* Diego Alejandro Monroy Rojas.
15:00	15:30	Oral contribution 2.5 *Supramolecular arrays for quantum superabsorption:Toward a quantum battery* Juan David Álvarez Cuartas. Centre for Bioinformatics and Photonics (CIBioFi). Universidad del Valle (Colombia)
15:30	16:00	Oral contribution 2.6 Use of decoy states as a method for increasing security in a quantum key distribution protocol Jorge Eduardo Arias Muñoz. Universidad del Valle (Colombia)
16:00	16:30	**Coffee Break**
16:30	18:00	**Poster Session**

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Nano & Quantum Workshop 2024

Wednesday, 27 November 2024

Star	End	
9:00	9:45	Plenary. *Annoys in quantum computation* Prof. Pablo Rivera Riofano. Research Institute of Physics. Universidad Nacional Mayor de San Marcos (Peru)
9:45	10:15	Oral contribution 3.1. *Quantum Application in Ultra-Cold Atoms* Prof. Luis Ever Young Silva. Grupo de Modelado Computaciona. Universidad de Cartagena (Colombia)
10:15	10:45	**Coffee Break**
10:45	11:30	Plenary. *Preliminary Results About Fabrication and Study of DC Josephson Junction based on YBCO Superconductor* Prof. Juan Carlos Gomez. Research Institute of Physics. Universidad Nacional Mayor de San Marcos (Peru)
11:30	12:00	Oral contribution 3.2. Towards a p-n heterojunction of Ga2O3 and diamond Marte Pedersen Stalsberg. Department of Physics and Center for Computing in Science Education, University of Oslo
12:00	14:00	**Lunch Time**
14:00	14:30	Oral contribution 3.3 *Memristor Type Structures Based on TiO_2 Nanotubes for Non-Volatile Memories Applications* Yulied Porras Ramirez. Universidad Nacional de Colombia (Colombia)
14:30	15:00	Oral contribution 3.4 Structural and Optoelectronic Effects of Modified Sol-Gel Synthesized TiO2 Nanoparticle Doping on YBa2Cu3O7-δ: Conduction Mechanisms Silvana Palomino. Universidad del Valle (Colombia)
15:00	15:30	Oral contribution 3.5 *Ultra-thin films of CdS doped with silver: synthesis and modification of optical, structural, and morphological properties by the doping concentration effect* Juan Molina Jimenez. Universidad Popular del Cesar (Colombia)
15:30	16:00	Oral contribution 3.6 Excitation of Localized Surface Optical Plasmon Resonance LSPR in PMMA Capillary Fibers Coated with Ag Nanoparticles for Sensing Applications Yeiner Molina. Universidad Popular del Cesar
16:00	16:15	**Coffee Break**
16:15	18:00	**BOAT TRIP ON THE BAY**

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Nano & Quantum Workshop 2024

Thursday, 27 November 2024

Star	End	
9:00	9:45	Plenary. *Ion implantation and annealing methods toward quantum emitters in silicon* Dr. David Rivas. Department of Physics and Center for Computing in Science Education, University of Oslo
9:45	10:15	Oral contribution 4.1 *Controlling directionality of emission from quantum defects through microstructures in Silicon* Erlend Lemva Ousdal. Department of Physics and Center for Computing in Science Education, University of Oslo
10:15	10:45	**Coffee Break**
10:45	11:30	Plenary. Testing Simultaneous Einstein-Podolsky-Rosen Elements of Reality for Non-Commuting Observables Using Weak Values Prof. Omar Calderon. Centre for Bioinformatics and Photonics (CIBioFi), Universidad del Valle (Colombia)
11:30	12:00	Oral contribution 4.2 *Polariton-assisted charge transfer dynamics in organic donor-π-acceptor* Juan Camilo Rodriguez. Centre for Bioinformatics and Photonics (CIBioFi), Universidad del Valle (Colombia)
12:00	14:00	**Lunch Time**
14:00	14:30	Oral contribution 4.3 *Using surface-facet transitions to tune the electronic spectrum of colloidal silicon quantum rods* Haniel David Robles Cohen. Universidad del Atlántico (Colombia)
14:30	15:00	Oral contribution 4.4 *Single and two-particles dynamics of spin-1 lattice bosons in presence of external periodic magnetic fields* Sebastian Loaiza. Universidad del Valle
15:00	15:30	Oral contribution 4.5 *Ferromagnetic resonance of magnetic multilayers at finite temperature* Juan Sebastian Urquijo Cárdenas. Universidad de Sucre
15:30	16:00	Academic Networks and Associations
16:00	16:30	**Coffee Break**
16:30	18:00	**Poster Session**

Poster Session

A-01 *Kitaev chain qubit simulations*
Eivind Støland. University of Oslo (Norway)

A-02 *Efficiency of a heat engine enhanced by quantum coherences under dissipation*
Freddier Cuenca. Universidad del Valle

A-03 Theoretical and experimental coherent quantum control of single molecules using ultrashort pulses
Juan Manuel Scarpetta. Universidad del Valle

A-04 *Hong-Ou-Mandel Interferometer for Single-Photon Pair Indistinguishability and Quantum Optical Coherence Tomography*
Juan Esteban Murillo Zapata. Universidad del Valle

A-05 *Pinn-Assisted Driven Coherent Dynamics and its Resistance to Dissipation*
Luis Miguel Fabra. Universidad de Córdoba

A-06 *Agent-based modeling meets quantum computing: A study on segregation*
Nixon Lizcano. Universidad Nacional de Colombia

A-07 *Hong-Ou-Mandel interferometer for single-photon pair indistinguishability and quantum optical coherence tomography*
Juan Esteban Murillo Zapata. Universidad del Valle

A-08 *Quantum correlations and redundant information in Quantum Darwinism*
Cesar Navarro Acosta. Universidad de Córdoba

A-09 *Bose-Einstein condensate as a quantum application*
Ana Fuentes and Jaime Correa. Universidad de Cartagena

A-10 *Liquid crystal-based polarization control for secure communications*
Juan Camilo Moreno and Miguel Angel Rojas. Universidad Autónoma de Occidente

A-11 *Analyzing the eigenstate thermalization hypothesis in a system of random free fermions: Insights from random matrix theory and free probability*
Krystifer Campos Muñoz. Universidad del Valle

A-12 *Numerical modeling of the coherent backscattering phenomenon in non-homogeneous media*
Nicolas Aguilera García. Universidad del Valle

A-13 *Analysis of quantum obesity in correlation swapping and DQC1 protocols*

Walter Carreño Durango. Universidad de Córdoba

A-14 *Study of quantum thermodynamics in simple solar cell models for the analysis of energy efficiency*
Johan Sebastian Pinzón Mesa. Universidad de Pamplona

A-15 *Dynamics of a bosonic particle system in an anisotropic double well using path integrals*
Kevin Giraldo Hincapie. Universidad del Valle

A-16 *Floquet dynamics of one-dimensional disordered spin chains with local interactions*
Rafael Alejandro Velez Gonzalez. Universidad del Valle

A-17 *Measurement incompatibility in the multi-object subchannel exclusion*
Fernando Hernandez Ortega. Universidad de Córdoba

B-01 *BODIPY-pyrene halogenation: Optoelectronic effects*
Carlos Andres Jaramillo. Universidad del Valle

B-02 *Nonlinear localized modes in a rhombic lattice*
Edwin David Conrado Dieppa. Universidad del Atlántico

B-03 *Analysis of coherent backscattering of light in aqueous media for the characterization of colloidal particles*
Maria Del Mar Pérez. Universidad del Valle

B-04 *Optical fibers coated with oxidated graphene for sensing applications*
Camila Andrea Noreña. Universidad Popular del Cesar

B-05 *Two-photon absorption of four benzoxazole derivatives: A density functional theory-based approach*
Edwin Rivera. Universidad Popular del Cesar

B-06 *The aisotropic Bose-Hubbard dimer in the mean field approximation*
Isabella Becerra Arbeláez. Universidad del Valle

B-07 *Architecture dependence in the many-body entanglement structure of local quantum circuits*
Andrés Felipe Valencia. Universidad del Valle

C-01 *Anisotropic and external field effects on a ferrimagnet of spins $S = 3$ y $\sigma = 7/2$*
Jorge Arturo Hoyos García. Universidad de Córdoba

C-02 *Ferromagnetic resonance of a magnetic nanoparticle in the inertial regime*
Calixto Cordero Carmona. Universidad de Sucre

C-03 *Characterization of chaotic magnetic nanoparticle dynamics in the inertial regime*

Juan Romero Huertas. Universidad de Sucre

C-04 *Influence of temperature and ultrasonic energy on the synthesis and properties of Fe_3O_4 nanoparticles*
Maria Vega. Universidad Pedagógica y Tecnológica de Colombia

C-05 *Síntesis y caracterización de nanopartículas de Fe_3O_4 y BaO utilizando el extracto de la hoja de Azadirachta*
Valeria Quíntana y Reinel Enrique Cardenas. Universidad del Atlántico

C-06 *Ferromagnetic resonance of magnetic multilayers at finite temperature*
Camilo García Acevedo. Universidad de Sucre

C-07 *Formation and control of defects in silicon using a potential bias*
Laura Maria Muñoz Martinez. Universidad del Valle

C-08 *Electrical transport measurements on metallic film with constriction*
Melvin James Godoy, Jimmy Cardenas and Jorge Luis Garcia. Universidad Nacional Mayor de San Marcos (Perú)

C-09 *Preliminary results on electrical transport measurements of YBCO Dayem bridge construction*
Melvin James Godoy, Jimmy Cardenas and Jorge Luis Garcia. Universidad Nacional Mayor de San Marcos (Perú)

C-10 *Electronic Spectrum of Ge-core/Si-shell annowires determined by means of atomic efective potencials calculations*
Ailyn Camacho Rocha. Universidad del Atlántico

C-11 *Green synthesis and characterization of carbon quantum dots from Hibiscus Sabdariff*
Jesús Amador Martinez. Universidad Popular del Cesar

C-12 *Synthesis and characterization of Mn-Zn nanocrystalline ferrites obtained via hydrothermal process from Aloe barbadensis Mill (Asphodelaceae) extract for the treatment of water contaminated with organic dyes*
Melissa Quevedo. Universidad del Atlántico

C-13 *Synthesis and characterization of ZnO nanorods: A simple synthesis*
Emely Ruiz Duarte. Universidad Popular del Cesar