TUTORIAL COURSES

The three days of tutorial courses will take place in the Universidad de los Andes, in the classroom **SD-805.**

Monday October 2nd

Hour	Activities	
9:00-10:00	Registration	
10:00-10:30	Opening	
10:30-12:00	Recent Advances in Percolation Theory	Hans Herrmann
12:00-12:10	Photo	
12:10-2:00	Lunch	
2:00-3:30	Control Theory and Stochastic Thermodynamics	John Bechhoefer
3:30-4:00	Coffee break	
4:00-5:30	Quantum thermodynamics: fluctuations and thermal machines	Gonzalo Manzano

Tuesday October 3rd

Hour	Activities	
8:30-10:00	Quantum thermodynamics: fluctuations and thermal machines	Gonzalo Manzano
10:00-10:30	Coffee break	
10:30-12:00	Recent Advances in Percolation Theory	Hans Herrmann
12:00-2:00	Lunch	
2:00-3:30	Control Theory and Stochastic Thermodynamics	John Becchoefer
3:30-4:00	Coffee break	
4:00-5:30	Quantum thermodynamics: fluctuations and thermal machines	Gonzalo Manzano

Wednesday October 4th

Hour	Activities	
8:30-10:00	Recent Advances in Percolation Theory	Hans Herrmann
10:00-10:30	Coffee break	
10:30-12:00	Control Theory and Stochastic Thermodynamics	John Becchoefer

CONFERENCES AND WORK PRESENTATIONS

The two days of conferences and work presentations will take place at the Universidad Nacional de Colombia, in the auditorium **A1 of the "Aulas de ciencias Gloria Galeano Garcés" building 564**

Thursday October 5th

8:30-9:00	Frustrated Bearings	Hans Herrmann
9:00-9:20	Exploring the glassy dynamics of the Gaussian core model	Manuel Camargo
9:20-9:40	Exploration mechanisms intrinsic to semantic networks and the nuanced appraisal of lexical repetition occurrences.	Fernando Naranjo
9:40-10:00	Citizen environmental governance: reconstructing through network analysis the dynamics of the social movement in the Páramo de Santurbán	Gabriel Villalobos
10:00-10:30	Coffee Break	
10:30-10:50	Distinguishability versus Indistinguishability of Agents in Metapopulation Epidemic Models	Jesús Gómez Gardeñes
10:50-11:10	Statistical mechanics of the exchange kinetic models associated with additive and multiplicative stochastic processes	Carlos Quimbay
11:10-11:30	Competition between convergence and conviction in a kinetic model of opinion formation with limited influence	Jefferson Rubiano Forero
11:30-11:50	Burr distribution in voting and asymmetric additive stochastic process	Alejandro Riascos Ochoa
11:50 - 12:10	Generalized fractional Feynman-Kac formula	Felipe Segundo Abril Bermúdez
12:10 - 2:00	Lunch	
2:00-2:20	How we move in the city: some results of the analysis of complex mobility networks	Laura Lotero
2:20-2:40	Urban traffic dynamics through the lens of percolation theory	Luis Eduardo Olmos
2:40-3:00	Discrete-time random walks with stochastic restart on networks: when resetting becomes advantageous?	Alejandro Perez Riascos
3:00-3:20	Emergent properties of chess openings	Rafael Hurtado
3:20-3:40	Random walks on networks with preferential cumulative damage: Generation of bias and aging	Leidy Katherin Eraso Hernandez
3:40-4:00	Coffee Break	
4:00-6:00	Poster session (Building 405)	

Friday October 6th

8:30-9:00	What can Maxwell's demon do?	John Bechhoefer
9:00-9:20	Numerical integration of a class of stochastic differential equations with singular coefficients	Sergio Andraus
9:20-9:40	One-particle engine with a porous piston	Carlos Alvarez
9:40-10:00	Fast Thermal Equilibration Protocol: Two-step protocol	Diego Rengifo
10:00-10:30	Coffee Break	
10:30-10:50	Physical properties driven by phase separation in electron-correlated materials: percolation and avalanches	Juan Gabriel Ramirez
10:50-11:10	Analysis of phase transition in a CrI3 monolayer using the Ising model in a hexagonal lattice	José David Garavito, Nathalia Alexandra Pérez
11:10-11:30	Theoretical Determination of Phase Diagrams using the Ising Model and Mean-Field Renormalization Groups (MFRG) with Machine Learning Tools and Monte Carlo Simulation	Juan Esteban Bedoya Rodriguez
11:30-11:50	Frustration effects on the magnetic behavior of the Fe(73.5-x)Cr(x)Cu1Nb3Si13.5B9 system on the road to percolation	Andrés Rosales Rivera
11:50-12:10	Comparative Analysis of Surface Charge Density in Planar Metallic Layers: Molecular Dynamics and Method of Moments Approach for Long-Range Interactions	Robert Salazar
12:10- 2:10	Lunch	
2:10-2:40	Thermodynamics of Gambling Demons	Gonzalo Manzano
2:40-3:00	Work and heat in weakly measured quantum systems: The way you measure matters.	Carlos Viviescas
3:00-3:20	A path integral approach to work in the Margenau-Hill scheme	Nicolás T Domínguez
3:20-3:40	No-Fusion and Fusion Process in Log-Coulomb Gases	John Fredy Mateus Rubio
3:40-4:00	Coffee Break	
4:00-4:20	Beyond molecular kinetics: statistical physics methods in systems biology	Juan Manuel Pedraza
4:20-4:40	Bayesian analysis of free energies using Cryo-EM particle images	Pilar Cossio
4:40-5:00	Explaining the complexity of Colombian climate from the non-extensive extremal behavior	Isabel Cristina Hoyos
5:00-5:20	Determination of the free energy landscape of ultrasmall silver clusters with metadynamics and machine learning techniques	Olga López-Acevedo
5:20-5:40	Steady state of a two-species annihilation process with separated reactants	Diego Luis Gónzalez

POSTERS

The poster session will take place at the Universidad Nacional de Colombia on **Thursday, October 5th, from 4:00 p.m. to 6:00 pm, on the 405 building.**

No.	Title	Presenters
P01	Stochastic theories leading to quantum mechanics in curved space-time	Eric Santiago Escobar Aguilar
P02	A generalised model for noise propagation in transcriptional genetic cascades.	Juan David Marmolejo Lozano
P03	Critical properties of the Ising model on fractal lattices	Viviana Gómez Ramírez
P04	Reaction-Diffusion Models as an optimal search mechanism in complex semantic networks	Gustavo Espinosa Otalora
P05	Evolution of temporal fluctuation scaling exponent in non-stationary time series using supersymmetric theory of stochastic dynamics	Felipe Segundo Abril Bermúdez
P06	Mesoscopic heat engines: Protocols and their characterization	Daniel Felipe Vargas Castillo
P07	Estudio de la secuencia de armado de un rompecabezas como un proceso de percolación	Juan Benavides
P08	Characterization of Fluorescence Correlation Spectroscopy (FCS) for Two-dimensional Diffusion Coefficient Measurements	Juan Esteban Sandoval Granados
P09	Liouville's theorem, three converging points of view in mechanical and statistical physics	Irene Sánchez Arroyave
P10	Uniaxial Anisotropy in MnAlCu systems	Mily Sánchez
P11	Phase Separation Dynamics in Calcium and Praseodymium-Doped Manganites	Joan Sebastian Amaya Bohorquez
P12	Heat exchange fluctuation relation for the transition from a micro-canonical to a canonical ensemble in a classical harmonic oscillator	Jose Daniel Muñoz Castaño
P13	How to join the force and volume ensembles of granular media	Jose Daniel Muñoz Castaño
P14	A review of the stochastic leapfrog thermostat for Langevin dynamics	Julian David Jimenez-Paz
P15	A combinatorial calculation of the microcanonical average value of magnetization magnitude for the one-dimensional Ising model	Kevin Fernando Castrillón Cárdenas
P16	Study of a traffic bottleneck using a cellular automaton model	Juan Sebastian Florez Jimenez

ON-SITE VENUES

The short courses will be conducted from Monday, October 2nd, to Wednesday, October 4th, at Universidad de los Andes, Santo Domingo building, auditorium SD 805.

For the conferences on Thursday, October 5th, and Friday, October 6th, the venue will be Universidad Nacional de Colombia, Bogotá site, in the auditorium A1 of the "Aulas de ciencias Gloria Galeano Garcés" building 564.

INFORMATION AND CONTACT

Web: https://fisindico.uniandes.edu.co/e/4WSP
e-mail: escuela-fisica-estadistica@uniandes.edu.co

Universidad de los Andes Colombia | Facultad de Ciencias Departamento de Física
Departamento de Física Facultad de Ciencias Sede Bogotá | Universidad Nacional de Colombia
DRE Dirección de Relaciones Exteriores

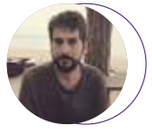
4th WORKSHOP ON STATISTICAL PHYSICS

MORE INFORMATION
https://fisindico.uniandes.edu.co/e/4WSP

TUTORIAL COURSES

"Recent Advances in Percolation Theory"
Hans J. Herrmann
PMMH, ESPCI Paris, France and UFC, Fortaleza, Brazil

"Control Theory and Stochastic Termodynamics"
John Bechhoefer
Simon Fraser University
Canada



"Quantum thermodynamics: fluctuations and thermal machines"
Gonzalo Manzano
Instituto de Física Interdisciplinar y Sistemas Complejos - IFISC (CSIC-UIB)
Spain

ORGANIZED BY

Gabriel Téllez
Departamento de Física
Facultad de Ciencias
Universidad de los Andes

José Daniel Muñoz
Departamento de Física
Facultad de Ciencias
Universidad Nacional de Colombia,
Sede Bogotá

2023
DATES
MONDAY **OCTOBER 2nd**
TO
FRIDAY **OCTOBER 6th**