

Physics Days 2024 parallel presentation sessions

All parallel sessions are in the 3rd floor lecture rooms of the Main building (Fabianinkatu 33).
For each presentation is reserved 12 minutes + 3 minutes for discussion.

Monday, March 4, 15:15 – 16:45 Parallel sessions 1		
Computational science 1 Room: F3017 Chair: Jesper Byggmästar (University of Helsinki)		
15:15	Fartash Chalangari	Electronic Transport in Quantum-Chaotic Nanostructures
15:30	Kim Eklund	Pyroelectric Effect in Ferroelectric Perovskites Studied with Density Functional Theory
15:45	Jussi Enkovaara	Enabling km-scale coupled climate simulations on GPUs
16:00	Adolfo Fumega	Moiré-driven multiferroic order in twisted Chromium trihalides
16:15	Davide Gambino	Computational investigation of radiation damage in high-temperature superconductors for nuclear fusion applications
16:30	Nadezda Korepanova	Comparison of Interatomic Potentials for Silicon Applied to Radiation Damage Studies
Models and phenomenology 1 Room: F3005 Chair: Matti Kalliokoski (University of Helsinki)		
15:15	Sami Jouttijärvi	Integrating solar energy to the Finnish power system
15:30	Aapo Poskela	Solar Energy and Recycling: A Rapidly Approaching Challenge
15:45	Antti Immonen	Wearable temperature distribution sensing platform
16:00	Tomas Lindén	I'd like to build and operate a fusion power plant - who will license it?
16:15	Kameyab Raza Abidi	Two-dimensional metals are nanoscale amoeba
Education and outreach Room: F3010 Chair: Inkeri Kontro (Tampere University)		
15:15	Matti Heikkinen	Espoo goes quantum, the high school course on quantum computing
15:30	Pekka Koskinen	MOOCs for Versatile Physics Education
15:45	Peitsa Veteli	Curiosity over the Lines – Open Data in Interdisciplinary Learning
16:00	Kenneth Peltokangas	Ilmastonmuutoksen luonnontieteellisten perusteiden opettaminen osana Ilmastoasiantuntijan erikoistumiskoulutusta
Experiments and infrastructures 1 Room: F3003 Chair: Shubo Wang (University of Oulu)		
15:15	Harriet Åhlgren	Two-dimensional noble gas clusters in a graphene sandwich
15:30	Ramesh Raju	GLA enhances transmittance and electrical conductivity of ALD Al-doped ZnO for thermoelectric and TCO applications
15:45	Rebekka Nagy	Micro-Alphatross: Towards High-intensity Negative Helium Beam
16:00	Spyridon Korkos	Structure formation in miscible and immiscible thin bimetallic films synthesized by temporally modulated vapor fluxes
16:15	Xin Huang	Atomically sharp lateral heterostructures of VSe ₂ –NbSe ₂
16:30	Tuomas Tinus	Poisoning of a thin-film ALD TiO ₂ photocatalyst by thermal ion diffusion from microscopy glass substrate

Tuesday, March 5, 11:30 – 13:00
Parallel sessions 2

Computational science 2

Room: F3017

Chair: Pekka Koskinen (University of Jyväskylä)

11:30	Janne Kalikka	Modelling the structure of amorphous Al ₂ O ₃ under stress
11:45	Aleksi Kamppinen	Computational perovskite solar cell model including optics, electrics and heat
12:00	Lauri Karttunen	Performance evaluation for solar panels in Nordic conditions
12:15	Tomi Ketolainen	Electronic structure and electrical conductivity of Ge ₂ Sb ₂ Te ₅ heterostructures with different layer orderings
12:30	Feliks Kivelä	Quantum simulation of the pseudo-Hermitian Landau–Zener–Stückelberg–Majorana effect

Models and phenomenology 2

Room: F3005

Chair: Aleksis Leino (University of Helsinki)

11:30	Kalle Kansanen	Photon emission statistics of driven microwave cavities
11:45	Pedro Vinicius De Castro Portugal	Heat pulses in electron quantum optics
12:00	Antti Vaaranta	Heat transport in a superconducting qubit-resonator chain with weak coupling to two thermal baths
12:15	Christopher Campbell	Nonequilibrium many-body dynamics in supersymmetric quenching
12:30	Ari Sihvola	Peculiarities in scattering and extinction of dielectrically active particles
12:45	Koushik Swaminathan	Coexistence of ergodic and non-ergodic behaviour in one-dimensional toy model of a flat-band superconductor

Experiments and infrastructures 2

Room: F3003

Chair: Harriet Åhlgren (University of Helsinki)

11:30	Henna Kokkonen	Properties of the new alpha-decaying isotope ¹⁹⁰ At
11:45	Kalle Auranen	Probing triaxiality beyond the proton drip line: Spectroscopy of ¹⁴⁷ Tm
12:00	Arthur Jaries	Recent mass measurements of neutron-rich rare-earth nuclides with JYFLTRAP at IGISOL for the astrophysical r-process
12:15	Franck Louba Nadjji Adjim	Defect generation in single-layer graphene upon sputter deposition of thin metal films
12:30	Vladimir Kornienko	Spurious reflections in target detection with entangled photons
12:45	Ville Tiainen	Ultra-fast photochemistry in the strong light-matter coupling regime

Diversity in Physics, Finland (FinDiP)

Room: F3010

Chair: Tuuli Miinalainen (Finnish Meteorological Institute)

11:30–13:00	Antti Tuononen, Aspects of accessibility and inclusion Phil Heron and Jamie Williams, Making science inclusive – building an accessible classroom dynamic Open discussion
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Tuesday, March 5, 15:00 – 16:30
Parallel sessions 3

Computational science 3

Room: F3017

Chair: Tomi Ketolainen (Tampere University)

15:00	Ondrej Krejci	High-throughput catalyst screening for CO ₂ to methanol conversion with machine-learned force-fields
15:15	Lauri Kurki	Automated Structure Discovery for Scanning Tunnelling Microscopy
15:30	Aleksi Leino	Modeling the effects of high energy ion impacts in diamond
15:45	Vesa-Matti Leino	Segmentation of trabecular bone in X-ray microtomography using a workflow of elementary image processing methods
16:00	Alvaro Lopez-Cazalilla	Mechanisms of bubble growth and blistering on metals exposed to hydrogen
16:15	Antti Mikkonen	Towards a joint retrieval of aerosols and CO ₂ from space-based hyperspectral imager data

Computational science 4

Room: F3005

Chair: Tetiana Malykhina (Aalto University)

15:00	Jouko Nieminen	Atomistic modeling of a superconductor-transition metal dichalcogenide-superconductor Josephson junction
15:15	Marco Panero	Theoretical approach to inclusive semileptonic decays of heavy mesons through lattice QCD
15:30	Reko Penttilä	Mean-field and dynamical mean-field theory studies on flat band superconductivity from two to three dimensions
15:45	Elizabeth Pereira	Non-Hermitian topological modes from local loss engineering in photonic arrays
16:00	Ville Pyykkönen	All-optical switching at the two-photon limit with interference-localized states
16:15	Matti Raasakka	Comparing resource requirements of noisy quantum simulation algorithms for the Tavis-Cummings model

Observations

Room: F3010

Chair: Deanna Hooper (University of Helsinki)

15:00	Tiina Minkkinen	Detecting a gravitational wave background from early universe phase transitions with LISA
15:15	Lorenzo Giombi	General relativistic bubble growth in cosmological phase transitions
15:30	Emma Mannfors	Cloud evolution in the high-energy molecular ring Lambda Orionis
15:45	Eleanna Asvestari	Quantifying modelling limitations in reconstructing the magnetic field of the solar corona
16:00	Jyrki Kauppinen	A New Global Thermometer
16:15	Tatu Korkiamäki	Coherent thermal transport control via pillar-based phononic crystals

Experiments and infrastructures 3

Room: F3003

Chair: Rebecca Heilmann (Aalto University)

15:00	Mikael Johansson	Non-computing quantum computing
15:15	Lotta Ansas	Determining the swimming dynamics of a mesoscale living organism
15:30	Koos Zevenhoven	Focused ultrasound in combined magnetic resonance imaging and magnetoencephalography system
15:45	Philson-Amanda Aden	Air purifiers as collectors of aerosol particles containing radioactive substances in radiation hazard situations
16:00	Zhuoran Geng	Piezoelectrically Mediated Acoustic Phonon Heat Transfer Across a Vacuum Gap
16:15	Valtteri Turkki	Scanning Droplet Adhesion Microscope for accurate surface characterization

Wednesday, March 6, 09:00 – 10:30
Parallel sessions 4

Computational science 5

Room: F3003

Aliisa Ojala (Tampere University)

09:00	Pascal Marc Vecsei	Quantum Phase Transitions in Fermionic Chains with a Lee-Yang Method
09:15	Onni Veteläinen	Modeling the fragmentation dynamics and valence photoelectron spectra of aminobenzoic acid
09:30	Andreas Wagner	Flux Rope Extraction Scheme for Solar Magnetic Field Simulations
09:45	Lauri Ylinen	Quantum computing algorithm for an inverse travel time problem
10:00	Yuhao Zhang	Machine Learning Optimization of Thermally Activated Nylon Actuator Coils

Models and phenomenology 3

Room: F3010

Chair: Kari Rummukainen (University of Helsinki)

09:00	Gauthier Danneaux	Nuclear octupole shapes in actinides with Fayans functional
09:15	Elina Kauppinen	Calculations about the double-beta decay of ^{104}Ru
09:30	Sami Yrjänheikki	Dimuon production in neutrino-nucleus collisions - the SIDIS approach
09:45	Mirja Tevio	Evolution of structure functions at NLO without PDFs
10:00	Antti Hippeläinen	Improved holographic analysis of the proton's structure
10:15	Anna Önnerstad	Latest results on multiplicity-dependent flow, testing the lower limit of flow in small systems with ALICE

Experiments and infrastructures 4

Room: F3017

Chair: Johannes Niskanen (University of Turku)

09:00	Iuliia Zhelezova	Vacancy defects in Si doped $\beta\text{-(Al,Ga)}_2\text{O}_3$
09:15	Shubo Wang	Insights into the mechanism of nano Ni_3TeO_6 calcination via in situ synchrotron X-ray diffraction
09:30	Tomi Vuoriheimo	Defect stabilization effect in fusion reactor plasma-facing materials
09:45	Kristian Arjas	Multimode Lasing in Supercell Plasmonic Nanoparticle Arrays
10:00	Jouni Ruotsalainen	Double-beta decay Q-value measurements with the JYFLTRAP Penning trap
10:15	Eetu Uusikylä	Nuclear lifetime analysis using the Advanced Plunger-Particle detector Array device (APPA plunger)

Experiments and infrastructures 5

Room: F3005

Chair: Jens Erik Brücken (University of Helsinki)

09:00	Ewa Rej	Towards gravity detection using optomechanics with mass-loaded resonators
09:15	Mikko Vuori	Refractive index of Mercury analog particles from light scattering measurements
09:30	Marko Kuzmanović	High-fidelity robust qubit control by phase-modulated pulses
09:45	Henri Jutila	Improving the detection limit in lung counting with a highly segmented HPGe detector
10:00	Atso Ikkäheimo	Density dependence of quantised vortex tension in ^4He
10:15	Rustem Nizamov	A Novel Method for Quantitative Assessment of Photovoltaic Material Degradation via Analysis of Color Alteration