



53rd HEIDELBERG PHYSICS GRADUATE DAYS

OCTOBER 7–11, 2024

AT THE DEPARTMENT OF PHYSICS AND ASTRONOMY



UNIVERSITÄT
HEIDELBERG

ZUKUNFT
SEIT 1386

Courses are conceived for advanced students in physics, in particular for doctoral or masters students. The goal of the lecture series is to expand the general knowledge of students and to deepen their understanding of special topics and methods. Each course runs every day for five days either in a morning or afternoon slot.

MORNING COURSES MONDAY TO FRIDAY, 9:30–12:30

SOLVABLE MODELS OF QUANTUM BLACK HOLES: AN OVERVIEW OF JACKIW-TEITELBOIM GRAVITY

Thomas Mertens, Ghent University

THE STATISTICAL PHYSICS OF COLLECTIVE MOTION: EMERGENCE AND UNIVERSALITY IN ACTIVE MATTER

Benoît Mahault, Max Planck Institute for Dynamics and Self-Organization

QUANTUM ELECTRODYNAMICS IN THE HIGH-INTENSITY REGIME

Antonino Di Piazza, University of Rochester / Max Planck Institute for Nuclear Physics

HIGH-RESOLUTION LASER SPECTROSCOPY IN THE STUDY OF SHORT-LIVED EXOTIC NUCLEI

Liss Vázquez Rodríguez, CERN / Max Planck Institute for Nuclear Physics

INTERACTING SPIN POOLS FOR MOLECULAR DIAGNOSTICS WITH MAGNETIC RESONANCE

Leif Schröder, German Cancer Research Center

PROVING EXTREME STATES OF QCD MATTER IN COMPACT STARS

Kenji Fukushima, University of Tokyo

AFTERNOON COURSES MONDAY TO FRIDAY, 14:00–17:00

MACHINE LEARNING AND DIFFERENTIABLE SIMULATORS FOR ASTROPHYSICS

Tobias Buck, Heidelberg University

OPTICAL ATOMIC CLOCKS ENABLING NEW PHYSICS SEARCHES

Nils Huntemann, Physikalisch-Technische Bundesanstalt

ATMOSPHERIC AEROSOLS AND CLOUDS IN THE CLIMATE SYSTEM

Ottmar Möhler, Larissa Lacher, Karlsruhe Institute of Technology

NANOMOTORS FROM BIOPHYSICS TO NANOROBOTICS

Peer Fischer, Heidelberg University

TRIGGER AND DATA ACQUISITION

Niklaus Berger, Johannes Gutenberg University Mainz

TRANSFORMATION BY DISRUPTION: QUANTITATIVE METHODS IN THE ENERGY, BANKING AND TRANSPORTATION SECTOR

Team d-fine, d-fine, Frankfurt am Main

ADDITIONAL LECTURE

MONDAY, OCTOBER 7, 2024, 17:30

FROM PARTICLES TO PROGRAMS: NAVIGATING THE LEAP FROM PHYSICS TO SOFTWARE DEVELOPMENT

Marc Schuh, Thomas Hugle, TNG Technology Consulting GmbH

followed by a general welcome party

For registration and further information, see <https://physik.uni-heidelberg.de/graddays>

STUDENT REPRESENTATIVES' WELCOME AND GET-TOGETHER

TUESDAY, OCTOBER 8, 2024, 17:30

HANS JENSEN INVITED LECTURE

THURSDAY, OCTOBER 10, 2024, 17:30

A VOYAGE THROUGH QUANTUM WONDERLAND

Anton Zeilinger, University of Vienna

followed by the d-fine dinner



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STRUCTURES
CLUSTER OF
EXCELLENCE



Baden-Württemberg

MINISTERIUM FÜR WISSENSCHAFT, FORSCHUNG UND KUNST

Finanziert vom Ministerium für Wissenschaft, Forschung und Kunst Baden-Württemberg im Rahmen der Nachhaltigkeitsfinanzierung der Projekte der Exzellenzinitiative II



Center for
Quantum Dynamics



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