



# 47th HEIDELBERG PHYSICS GRADUATE DAYS

OCTOBER 4–8, 2021

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

THE OCEANIC CARBON CYCLE IN THE CLIMATE SYSTEM  
**Leif Anderson**, University of Gothenburg

ULTRAFAST LIGHT-MATTER INTERACTION: MEASURING AND CONTROLLING QUANTUM DYNAMICS WITH ATTOSECOND AND FEMTOSECOND FLASHES OF LIGHT  
**Christian Ott**, Max Planck Institute for Nuclear Physics

AN INTRODUCTION TO ANALOG NEUROMORPHIC COMPUTING BASED ON THE BRAINSCALES ARCHITECTURE  
**Johannes Schemmel**, Heidelberg University

PARTICLE PHYSICS AT LOW ENERGIES  
**Ulrich Schmidt**, Heidelberg University

BAYESIAN INFERENCE ON MILKY WAY DATASETS  
**Gregory Green**, Max Planck Institute for Astronomy

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

A PEDAGOGICAL GUIDE TO COSMIC RAYS AND MAGNETIC FIELDS IN THE UNIVERSE  
**Christoph Pfrommer**, Leibniz Institute for Astrophysics Potsdam (AIP)

GEOMETRIC DEEP LEARNING  
**Petar Veličković**, DeepMind, London

THERMAL FIELD THEORY  
**Alexander Rothkopf**, University of Stavanger

NOVEL CORRELATED QUANTUM MATERIALS: PHENOMENA AND THEORY  
**Michael Scherer**, University of Cologne

SUSTAINABILITY, DECARBONISATION AND FINANCING GREEN: CONSULTING THE TRANSFORMATION IN THE CORPORATE WORLD AND FINANCIAL INDUSTRY  
**Team d-fine**, d-fine, Frankfurt am Main

## ADDITIONAL LECTURE

MONDAY, OCTOBER 4, 2021, 17:30

A JOURNEY FROM COSMOLOGY TO RAILWAYS: WHY PHYSICISTS ARE NEEDED TO DRIVE THE EVOLUTION TOWARDS SUSTAINABLE TRANSPORT FORWARD  
**Tim Tugendhat**, DB Analytics, Frankfurt am Main

## STUDENT REPRESENTATIVES' WELCOME


TUESDAY, OCTOBER 5, 2021, 17:15

## HANS JENSEN INVITED LECTURE

THURSDAY, OCTOBER 7, 2021, 17:30

PHYSICS OF SPREADING DYNAMICS: SELF-REGULATION, LEARNING AND INFORMATION TRANSFER IN NEURAL NETWORKS  
**Viola Priesemann**, Max Planck Institute for Dynamics and Self-Organization

For registration and further information, see <http://gsfp.physi.uni-heidelberg.de/graddays>

 Please see our website for info on precautionary measures due to COVID-19



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Baden-Württemberg

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Center for Quantum Dynamics



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