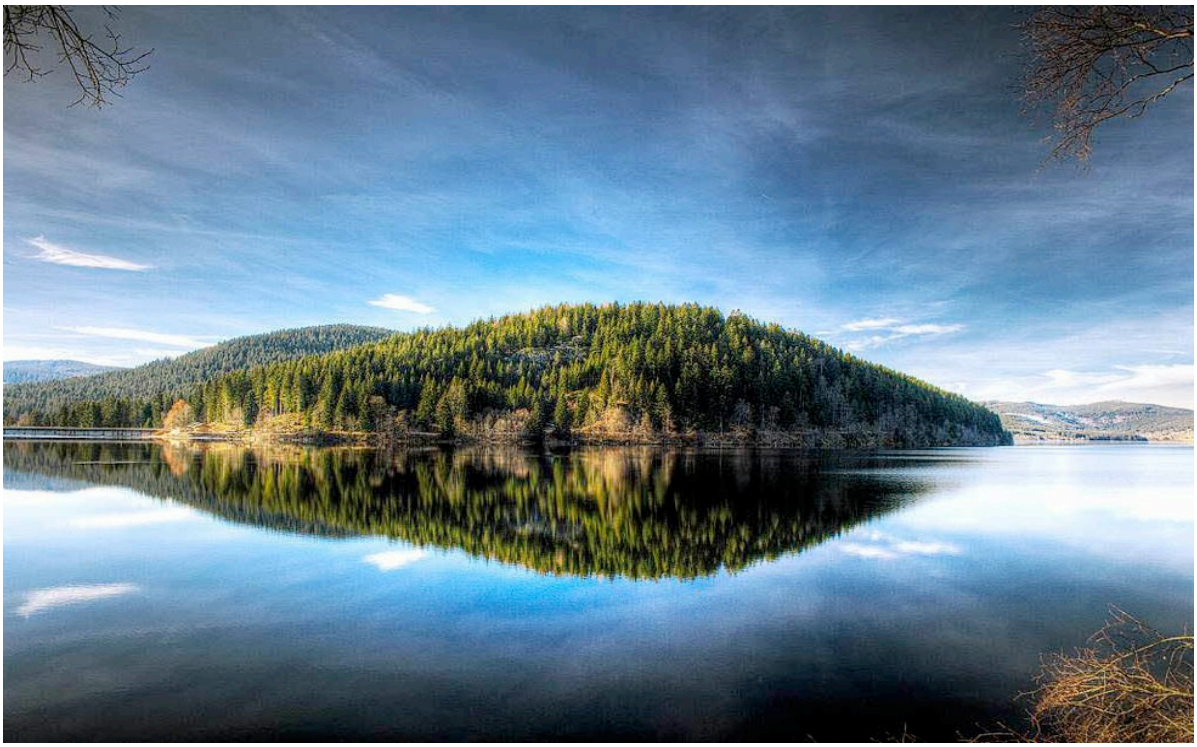
8th Annual Meeting of the RTG 2044



28. - 30. September 2022

Hotel Vier Jahreszeiten, Schluchsee

UNI FREIBURG

DFG Deutsche Forschungsgemeinschaft

Masse und Symmetrien nach der Entdeckung des Higgs-Teilchens am LHC
GRK 2044

Wednesday, September 28th

10:00 - 10:30	Arrival and Coffee
10.30 - 10.45	**Welcome and Announcements**
10.45 - 12.30	**Lecture 'The cosmological standard model: Foundations and problems' Part 1** *Matthias Bartelmann, Universität Heidelberg* *Based on three simple and plausible assumptions, the cosmological standard model has turned out to be a successful frame encompassing a huge range of empirical data. Yet, it arrives at conclusions which are partly enigmatic to us. With dark matter and dark energy, it requires two substances whose origin and nature are still unknown to us. Also, recent measurements of the cosmic expansion rate based on different data arrive at different conclusions. In this lecture, I will first describe the theoretical and empirical foundations of the cosmological standard model, and then discuss remaining problems.*
12.30 - 14.00	Lunch break
14.00 - 15.30	**Lecture 'Introduction to data unfolding' Part 1a** *Stefan Schmitt, DESY* *Measurements are often influenced by the detection method. The process of deconvoluting detetcor effects is often refered to as "data unfolding". In this lecture, an introduction to data unfolding methods is given, with emphasis on applications in particle physics. A basic introduction into the topic is followed by a discussion of unfolding methods frequently used in particle physics. The third part of the lecture is dedicated to a discusison of methods to choose regularisation settings.* *The lecture is complemented by exercises, based on the ROOT analysis framework. Basic knowledge of the root analysis package is mandatory, for manipulating histogram, matrix, and vector objects.*
15:30 - 16:00	Coffee break
16:00 - 17:00	**Lecture 'Introduction to data unfolding' Part 1b** *Stefan Schmitt, DESY*
17:00 - 17:30	**Sebastian Schumacher** *Integrating out heavy fields in the path integral using the background-field method*
17:30 - 18:00	**Roman Küsters** *Search for $A \rightarrow ZH \rightarrow ltt$ at $\sqrt{s} = 13$ TeV with the ATLAS detector*
18:30 - 20:00	Dinner
20:00 - open end	**Parallel sessions of PIs, Postdocs and PhD students**

Thursday, September 29th

07.00 - 08.30	Breakfast
08:30 - 10:15	**Lecture 'The cosmological standard model: Foundations and problems' Part 2** *Matthias Bartelmann, Universität Heidelberg*
10:15 - 10:45	Coffee break
10:45 - 11:15	**Simran Gurdasani** *Search for new physics in the tt+MET final state*
11:15 - 11:45	**Alexander Froch** *Search for ttH with H->bb and developing flavour tagging for Run 3*
11:45 - 13:15	Lunch break
13:15 - 15:00	**Lecture 'Dark Matter searches: overview, interpretation, and complementarity' Part 1** *Oleg Brandt, University of Cambridge* *Dark Matter contributes 85% of the mass budget of the universe. Understanding its particle nature is one of the biggest questions in physics today. This lecture will give an overview of the dark matter search strategies with a particular focus on the LHC. These strategies will be contrasted with each other in the light of the theoretical framework to guide and interpret dark matter searches at the LHC.*
15.30	Afternoon for Social Activity
20.00 time t.b.c.	Dinner

Friday, September 30th

07.00 - 08.30	Breakfast
08:30 - 10:15	**Lecture 'Dark Matter searches: overview, interpretation, and complementarity' Part 2** *Oleg Brandt, University of Cambridge*
10:15 - 10:45	Coffee break
10:45 - 12:45	**Lecture 'Introduction to data unfolding' Part 2** *Stefan Schmitt, DESY*
12:45 - 14:00	Lunch break
14:00 - 14:30	**Max Reyer** *Real Electroweak Corrections and the Dipole Subtraction Formalism*
14:30 - 15:00	**Prasham Jain** *Study of polarized same-sign WW production with the ATLAS detector*
15.00 - 16:45	**Poster session with coffee break**
16:45 - 17:25	**Good Scientific practice (organized by doctoral researchers)**
17:25 - 18:00	**Discussion**
18.00	**Departure**

Postersession on Friday, September 30th from 15:00 - 16:45h

1.	Rehberg, Jonas	*Precision Calculations in a Gauged Singlet Extension of the Standard Model*
2.	Solovieva, Ksenia	*Cosmic Test Stand Studies with a small-strip Thin Gap Chamber Quadruplet*
3.	Pretel, José	*Precision Measurement of Fiducial and Differential Cross Sections of WW Production with the ATLAS detector at the LHC*
4.	Müller, Julia	*Testing Electrodes in Pancake*
5.	Bhalla, Naman	*Sensitivity to lepton-flavour-violating Higgs boson decays at the HL-LHC using a data-driven background estimation*
6.	Bahner, Daniel	*Search for CP Violation and Investigation of the CP Properties of the Higgs Boson*
7.	Burlayenko, Oleksandr	*New jet samples preparation and their impact in jet calibration uncertainties. Measurement of Top-quark Pair Spin Correlation in the Lepton + Jets Channel Using the ATLAS Experiment*
8.	Glade-Beucke, Robin	*The Triggerless DAQ-System of XENONnT*
9.	Lyons, Fairhurst	*WOM-based Liquid Scintillator Detector*
10.	Kalaitzidou, Ilia	*The Heavy-Flavor Production Fraction Reweighting Procedure in ATLAS*
11.	Schwarz, Jan	*NNLO QCD-electroweak radiative corrections to single W/Z production*
12.	Tönnies, Florian	*Proportional Scintillation in a single phase liquid Xenon TPC*
13.	Toschi, Francesco	*The level meter system of XENONnT*
14.	Wells, Craig	*Improving Performance of Forward Electrons with the ATLAS Detector*
15.	Klinkert, Maximilian	*Integral Reduction & Two-Loop Helicity Amplitudes for Vector Bosons and Partons*
16.	Grigat, Jaron	*Simulating in the fast lane - effective predictions of signal separation in XENONnT*