

5th Annual Meeting of the GRK 2044



25. - 27. September 2019

Schwarzwaldhotel Möhringer, Bonndorf



DFG Deutsche
Forschungsgemeinschaft



Wednesday, September 25th

09.30 - 10.30 Arrival and Coffee

10.30 - 10.45 **Frank Sauerburger**
Information regarding the Python Workshop Oct 14 -16, 2019

10.45 - 12.30 **Yosef Nir**
Flavor Physics Within and Beyond the Standard Model - Part 1
I will discuss the special features of flavor physics in the SM. I will explain how experiments proved that the CKM mechanism dominates flavor changing neutral current and CP violating processes, and how these processes are used to constrain new physics. I will present the new physics flavor puzzle and some of the proposed solutions. Finally, I will briefly describe the current flavor anomalies.

12.30 - 14.00 Lunch break

14.00 - 15.45 **Michael Spannowsky**
Introduction to Jet physics and its applications - Part 1
The goal of the lecture is to provide an introduction to the topic of jet physics. This includes theoretical method used to calculate jet observables, the reconstruction of experimental inputs and the connection between experimental measurements and its comparison to theoretically calculated observables. I will also discuss cases where jet physics can benefit searches for new physics.

15.45 - 16.15 Coffee break

16.15 - 18.00 **Barbara Jäger**
Electroweak Symmetry Breaking and Vector-Boson Scattering - Part 1
One of the most important issues to be addressed by contemporary particle physics is the mechanism of electroweak symmetry breaking. These lectures will provide an introduction to the concept of electroweak symmetry breaking in the context of the Standard Model by means of the Higgs mechanism and briefly sketch possible extensions of this approach.

Particularly promising means for probing the mechanism of electroweak symmetry breaking at colliders are constituted by vector-boson scattering processes. After explaining how this class of reactions can be accessed at hadron colliders latest experimental results will be reviewed. We will furthermore discuss theoretical developments towards precise and realistic predictions that provide the basis for fully exploiting data on vector-boson scattering processes provided by the Large Hadron Collider and future collider experiments.

18.00 - 20.00 Dinner

20.00 - open end Meeting of the PhD-students /Meeting of the faculty members

Thursday, September 26th

07.00 - 08.45 Breakfast

08.45 - 10.30 **Yosef Nir**
Flavor Physics Within and Beyond the Standard Model - Part 2

10.30 - 11.00 Coffee break

11.00 - 12.45 **Barbara Jäger**
Electroweak Symmetry Breaking and Vector-Boson Scattering - Part 2

12.45 - 14.00 Lunch break

14.00 - 14.30 **Ralf Gugel**
Back to the Future: The High Luminosity Legacy of Higgs Couplings?

14.30 - 15.00 **Veronika Magerl**
Search for Squarks and Gluinos in Full Hadronic Final States

15.30 Excursion

20.00 Dinner

Friday, September 27th

07.00 - 08.45

Breakfast

08.45 - 09.15

Katharina Schleicher

Search for lepton-flavour violating decays of the Higgs boson with the ATLAS detector

09.15 - 09.45

Evgenij Pascual

Multi-loop amplitudes for processes with photons at the LHC

09.45 - 10.15

Cedric Hönig

TCT measurements of nitrogen enriched silicon sensors

10.15 - 10.45

Coffee break

10.45 - 12.30

Michael Spannowsky

Introduction to Jet physics and its applications - Part 2

12.30 - 14.00

Lunch

14.00 - 14.30

General Discussion + Instruction on Good Scientific Practice

14.30 - 15.00

Moritz Wiehe

Two Photon Absorption - TCT

15.00 - 15.30

Justin Baier

KWISP - Hunting Chameleons at the CAST Experiment at CERN

15.30 - 16.00

Michael Ruf

Multiloop scattering Amplitudes in Gravity and Field Theory

16.00 - 18.00

Poster session with coffee break

see more details on the last page

18.00

Departure

Postersession on Friday, September 27th from 16.00 - 18.00

1.	Max Reyer	<i>Real Electroweak Corrections and the Dipole Subtraction Formalism</i>
2.	Patrick Scholer	<i>Position Reconstruction with Large Micromegas Detectors in Testbeam Data and the Atlas Simulation Framework</i>
3.	Alexey Elykov	<i>The XENONnT Data Acquisition System</i>
4.	Frank Sauerburger	<i>Measurement of the Higgs-Boson coupling to τ-leptons using machine learning techniques</i>
5.	Leena Diehl	<i>Trapping effects in irradiated silicon strip sensors</i>
6.	Benjamin Rottler	<i>Search for Higgs boson pair production in the $b\bar{b}l\bar{l}$ decay channel with the ATLAS detector</i>
7.	Jan Schwarz	<i>NNLO QCD-electroweak radiative corrections to W/Z production and decay</i>
8.	Shalu Solomon	<i>Non-prompt lepton background estimation in same-sign WW production</i>
9.	Arturo Rodriguez Rodriguez	<i>Test Beam Analysis of ATLAS ITk End-cap Modules for the High Luminosity LHC</i>
10.	Daniel Baur	<i>Hardware R'n'D Towards DARWIN: The MonXe Radon Emanation Chamber</i>
11.	Patrick Meinhardt	<i>Towards a single-phase Time Projection Chamber</i>
12.	Julia Dierle	<i>MC simulations for the ultimate dark matter detector DARWIN</i>
13.	Simona Gargiulo	<i>Modelling of the W+jets background for the $VH, H \rightarrow b\bar{b}$ analysis using a BDT-reweighting technique</i>
14.	Fabian Becherer	<i>Measurements of cross sections in the $H \rightarrow \tau\tau$ decay channels with the ATLAS-Detector</i>
15.	Maximilian Klinkert	<i>IBP-Relations for complicated Integral Topologies</i>
16.	Wladimir Tschernow	<i>Feynman Integrals for $W/Z+2$ Jet Production at LHC</i>