

17.3 PhD, Master and Bachelor Theses

PhD Theses

- Search for Diboson Resonances with CMS and Pixel Barrel Detector Calibration and Upgrade
Jennifer Ngadiuba, PhD thesis, April 2017.
- Response of liquid xenon to low-energy neutron interactions, and PMT calibration system for the XENON1T dark matter search experiment
Payam Pakarha, PhD thesis, April 2017.
- General Relativity: Alternatives, Tests and Applications
Andreas Schärer, PhD thesis, June 2017.
- Materials Radioassay for the XENON1T Dark Matter Experiment with Gamma Ray Spectrometry and Development of a Projection Time Chamber for the Study of Low-energy Neutron Interactions in Liquid Xenon
Francesco Piastra, PhD thesis, June 2017.
- Probing the Universe with Citizen Science and Gravitational Lensing
Rafael Küng, PhD thesis, September 2017.
- Higher-Order QCD Corrections to Jet Production in Deep Inelastic Scattering
Jan Niehues, PhD thesis, September 2017.
- Out-of-Field Dose in Photon Radiotherapy: Models and Measurements
Pascal Hauri, PhD thesis, October 2017.
- Unveiling New Physics Hints through the Higgs Sector
Andrea Pattori, PhD thesis, November 2017.
- Post-growth Intercalation for Electronic Characterization of On-surface Synthesized Graphene Nanoribbons
Okan Deniz, PhD thesis, November 2017.
- Uncovering the Mechanical Properties of *Drosophila's* Wing Disc
Flavio Lanfranconi, PhD thesis, November 2017.
- Search for the Standard Model Higgs Boson Produced in Association with Top Quarks in the Fully Hadronic Final State at the CMS Experiment
Daniel Salerno, PhD thesis, February 2018.
- Characteristics of Tungsten Silicide and Its Application for Single X-ray Photon Detection
Xiaofu Zhang, PhD thesis, March 2018.
- Measurement of angular observables of $B_0 \rightarrow K_0^{*}ee$ and $B_0 \rightarrow K_0^{*}\mu\mu$ decays and the upgrade of LHCb
Federica Lionetto, PhD thesis, March 2018.
- Higher-Order Corrections to Higgs Boson Amplitudes with Full Quark Mass Dependence in Quantum Chromodynamics
Dominik Kara, PhD thesis, March 2018.
- Flavour Physics with (semi)leptonic decays at forward spectrometers
Elena Graverini, PhD thesis, March 2018.
- C80 Endohedral Fullerenes: Rearranging Atoms in a Magnetic Field and Exploring the Interplay of their Spins with Subkelvin Magnetometry and X-rays
Aram Kostanyan, PhD thesis, March 2018.

17.3.1 Master theses

- SiPM Readout for SHiP Timing Detector
Ruth Bründler, Master thesis, April 2017.
- Search for electroweak production of a vector-like quark T' decaying to a top quark and a Z boson
Giulia Giannini, Master thesis, June 2017.
- Characterisation of parallel interconnected silicon photomultipliers
Christian Huber, Master thesis, June 2017.
- Background predictions for double Higgs production at the LHC
Daniel Fäh, Master thesis, July 2017.
- Investigation of Adsorption Geometry and Electronic Structure of Cobalt-Porphyrin on $\text{Cu}_2\text{O}(111)$ and $\text{TiO}_2(110)$
Michael Hotz, Master thesis, July 2017.
- Search for a low mass ditau resonance at CMS in 2016 data
Izaak Neutelings, Master thesis, August 2017.
- A Study of Coatings with Breath Figure Structures on Silicon Photomultipliers and the Effect on the Photon Detection Efficiency
Timothy Widmer, Master thesis, August 2017.
- Dynamical Yukawa in the context of $\text{SU}(5)$ Grand Unification
Julie Pages, Master thesis, September 2017.
- Higgs Pseudo-Observables for New Physics Searches
Hantian Zhang, Master thesis, September 2017.
- h-BN Nanomesh Islands on PtRh Alloys: dI/dV Microscopy on Clean and Near-Ambient hydrogen Intercalated Surfaces
Hubert Nussbaumer, Master thesis, November 2017.
- (Time resolved) Photoluminescence of single layer MoS_2 and WSe_2
Kevin Kramer, Master thesis, November.
- Development of a fractionation scheme optimisation algorithm and implementation in a Graphical User Interface for radiotherapy planning
Nicoletta Farabullini, Master thesis, January 2018.
- Asymmetric Dependence of Dark Count Rates on Magnetic Field in differently shaped Superconducting Nanowire Single-Photon Detectors based on Niobium Nitride
Jessica Britschgi, Master thesis, February 2018.
- Timing detector based on scintillators and SiPMs for SHiP
Alexander Dätwyler, Master thesis, March 2018.
- Characterization of Novel VUV-Silicon Photomultipliers and their Application in Xenon-Based Dual-Phase TPCs
Chris Marentini, Master thesis, March 2018.
- The boundary terms of the Einstein-Hilbert action
Simone Bavera, Master thesis, March 2018.
- Gravitational wave polarization from future detector measurements
Adrian Boëtier, Master thesis, March 2018.
- Gravitational waves from binaries on hyperbolic trajectories
Oliver Fischer, Master thesis, March 2018.

17.3.2 Bachelor theses

- Towards Planckian SI Units (beyond CODATA 18)
Michael Ebersold, Bachelor thesis, April 2017.
- Time-Resolved Multi-Photon-Photoemission on Gallium Arsenide
Matthias Meier, Bachelor thesis, May 2017.
- Studies of $B_u \rightarrow K_{\pi^0} \pi^0$ decays at LHCb
Jonas Eschle, Bachelor thesis, June 2017.
- GPU Accelerated Photodynamic Modeling
Remo Furrer, Bachelor thesis, September 2017.
- Characterization of the local velocity field with TGAS-RAVE
Mauro Bernardini, Bachelor thesis, September 2017.
- Two-orbital band structure of the high- T_c superconductor $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$ - - An ARPES perspective
Kevin Hauser, Bachelor thesis, September 2017.
- Drosophila-Wing-Disc-Zellen unter Spannung: Gewebeveränderungen im Grossen vs. Kleinen
Andrina Bernhard, Bachelor thesis, September 2017.
- 1030 nm cw-Laser for muonic hydrogen hyperfine splitting spectroscopy
Céline Nauer, Bachelor thesis, November 2017.
- Reconstruction of tau lepton pair invariant mass using an artificial neural network
Pascal Bärtschi, Bachelor thesis, November 2017.
- The Thomas-Fermi theory
Filippo Gaia, Bachelor thesis, December 2017.
- Optimizing the search for DM in association with top quarks at the CMS experiment
Rico Buergler, Bachelor thesis, January 2018.
- Pressure Induced Rotational Symmetry Breaking in URu_2Si_2
Nik Dennler, Bachelor thesis, February 2018.