DOROTHEA VOM BRUCH

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PROFESSIONAL EXPERIENCE

CPPM (UMR 7346), CNRS, Marseille, France   *11/2020 - present*
· Chargé de recherche de classe normale CNRS/IN2P3

LPNHE (UMR 7585), CNRS, Paris, France   *12/2017 - 10/2020*
· Postdoc with the LHCb experiment

Mainz University, Germany   *04/2015 - 10/2017*
· PhD student with the Mu3e experiment

Heidelberg University, Germany   *01/2014 - 03/2015*
· PhD student with the Mu3e experiment

TRIUMF, Canada's particle accelerator centre, Canada   *05/2012 - 12/2013*
· Master's student with the PIENU experiment

EDUCATION

PhD: Heidelberg University, Germany   *01/2014 - 10/2017*
· Thesis: "Pixel Sensor Evaluation and Online Event Selection for the Mu3e Experiment"
· Supervisor: Prof. Niklaus Berger

Master of Science: University of British Columbia, Canada   *09/2011 - 12/2013*
· Thesis: "Studies for the PIENU Experiment and on the Direct Radiative Capture of Muons in Zirconium"
· Supervisor: Prof. Doug Bryman

Bachelor of Science: Humboldt University Berlin, Germany   *10/2008 - 08/2011*
· Thesis: "Studies on photon conversions in pp-collisions at ATLAS"

AWARDS AND SCHOLARSHIPS

LHCb Early Career Award   *06/2020*
For co-leading the exceptional effort that lead to the delivery of Allen

Lee Grodzins Postdoctoral Award
from the Massachusetts Institute of Technology (MIT)   *10/2019*
For the achievements as co-leader of the Allen project

Best poster prize at the Workshop on Advanced Computing and Analysis
Techniques in Physics Research (ACAT), Saas Fee, Switzerland   *02/2019*

DAAD fellowship For the Master's studies at the University of British Columbia   *2011 - 2012*

LEADERSHIP ROLES

Convener of the Reconstruction and Software Triggers working group of the HEP Software Foundation (HSF)
01/2021 - present

· Foster collaboration on design and implementation challenges, the adoption of common approaches, and raise awareness of existing solutions known to the community in the area of event reconstruction and software triggering

Convener of the Software development tools and methods working group at LHCb
10/2020 - present

· Organization of LHCb-internal hackathons

Co-leader of the Allen project at LHCb
03/2018 - present

· Full implementation of the first trigger stage of LHCb on graphics processing units (GPUs)
· Chosen for production by the collaboration in May 2020, to be commissioned for Run 3 of the LHC (2022)
· Coordinating and partially supervising 20 contributors from 11 institutions in 8 countries (mainly Bachelor, Master and PhD students)

Co-organizer of a minisymposium at PASC, Zurich, Switzerland
06/2019

· "Accelerating HEP with GPUs" with four invited talks
· Defining topics and inviting suitable speakers

Organizer of the 1st PRISMA Interactive Research Symposium "A Matter of Flavor", Mainz, Germany
02/2017

· 3-day workshop for 60 PhD students from experimental and theoretical high energy physics
· Lead organizer and responsible of finances, including proposal writing for funding agencies

SUPERVISION OF STUDENTS

Co-supervision of one PhD student at LPNHE
2017 - 2020

· Primary vertex reconstruction on GPUs for the Allen project

Co-supervision of one Master's student at Mainz university
2016

· Direct memory transfer for a beam telescope developed for testing Mu3e pixel sensor prototypes and the data acquisition system

Supervision of one summer student at Mainz university
2016

· Graphical user interface for the Mu3e beam telescope

TEACHING

University of Cantabria, Spain
06/2019 & 06/2020

· One lecture and a tutorial demonstration on "General purpose GPU computing with application to real time event selections in high energy physics" for students of the Master in Data Science

Summer School on Intelligent Signal Processing (INFIERI), Wuhan, China
05/2019

· One lecture on "General purpose GPU computing in high energy physics event filtering"
· Five tutorial sessions on each of the topics "Introduction to GPU computing with CUDA" and "Track fitting with a Kalman filter on a GPU" respectively, with six students in every session

Summer school on high-speed DAQ sytems for particle detectors,
Mainz, Germany *10/2016*

· One lecture on "Introduction to GPU architectures and CUDA"
· One afternoon tutorial session on CUDA programming with about 30 participants

Teaching Assistant at Heidelberg University, Germany *2014 - 2015*

· Three week summer course with about 15 students, helping the students in designing and carrying out an experiment to measure the ratio $\pi \to e\nu_e(\gamma)/\pi \to \mu\nu_\mu(\gamma)$ at the Paul-Scherrer Institute, Switzerland
· 10 one-day lab sessions for measuring the angular spectrum of cosmic ray muons

Teaching Assistant at the University of British Columbia, Canada *2012 - 2013*

· Two terms of weekly tutorial and lab sessions for introductory physics classes with about 40 first-year students from all disciplines
· One term of grading computational physics homework assignments

LANGUAGES

German Native speaker

English Fluent; TOEFL test, 2011

French Very good; DALF C1, 2008

Spanish Basic

Arabic Beginner