Marc Klinger

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Education and Training

From 01/2020 Expected end in spring 2024	**PhD in Theoretical Astroparticle Physics** DESY Zeuthen Within the Helmholtz Weizmann Research School on Multimessenger Astronomy Supervisors: Walter Winter, Andrew Taylor, Eli Waxman Focus: *Time-Dependent Radiation Modeling of Gamma-Ray Burst Afterglows* • Reduced analytical afterglow modelling • Time-dependent afterglow modelling of gamma-ray bursts • Development, maintenance and publication of the AM³ code • Counts-level fits from keV-TeV energies
12/2019	**Master of Science in Physics** with distinction Focus: Astroparticle Physics and Cosmology RWTH Aachen University Supervisors: Thomas Bretz, Philipp Mertsch Thesis: *Developing a Magnetic Reconnection Model to Interpret Blazar Variability as Measured with the FACT Telescope*
10/2016	**Bachelor of Science in Physics** with distinction RWTH Aachen University Supervisor: Christopher Wiebusch Thesis: *Development of a measurement setup to compare acoustic emitters for the EnEx-RANGE project*

Work and Research Experience

05/2017 – 02/2019	**Assistant Scientist at EnEx RANGE Project at RWTH Aachen** Focus: Experimental lab work and data analysis Glacier expedition for project validation (08/2017)
02/2017 – 03/2017	**Site visit of Pierre-Auger-Observatory, Argentina** Participation in maintenance, shifts, collaboration meeting and public outreach work at the local visitor's facility
09/2016 – 12/2016	**Scientific stay at the HAWC Observatory, Mexico** Studies on Radio Galaxies at the National Autonomous University of Mexico (UNAM) Participation in the *HAWC Collaboration Meeting* and the *Workshop on a wide field-of-view Southern Hemisphere TeV gamma ray observatory*

Selected Conference Talks

24/10/2023	**Plenary: High Energy Phenomena in Relativistic Outflows (HEPRO)** Lepto-Hadronic Very-High-Energy GRB Afterglows
10/01/2023	**Invited: Transient Tuesday, Niels Bohr Institute, Copenhagen (online)** VHE GRB Afterglows: A story about Bactrians, Dromedaries and lots of Butterflies
16/05/2022 18/05/2022	**Talks at the Harnack-Haus GRB Workshop Berlin** • One Zone Basics and Effective Descriptions • Multi-wavelength Fitting at the Counts Level
27/10/2021	**TeVPA 2021 (online due to Covid)** Understanding the Spectrum of Gamma-Ray Burst 190114C
26/03/2019	**Spring Meeting of German Physical Society** FACT - Spectral variability of TeV-blazars

Awards

12/2020	**Financial Performance Bonus for Active and Excellent Engagement in Research Discussions** Deutsches Elektronen-Synchrotron (DESY)

Teaching Experience

07/2023 - 09/2023 07/2022 - 09/2022	**DESY Summer student program** Supervision of 3 summer student projects on GRB afterglow modeling
10/2020 - 02/2021	**Mathematical Tools for a Physicist at Humboldt University** Preparation and discussion of weekly exercise sheets

Outreach

02/2022	**Workshop on Outreach Skills** 3-day workshop of the German network of (Astro)particle physics outreach
2023, 2022, 2021	**International Cosmic Day** Talk and supervision of a cosmic-ray experiment in school
2018 - 2020	**AIS³ - Astroparticle Immersive Synthesizer³** Construction and Maintenance of AIS³ with Tim Otto Roth in Berlin (08-09/2018), Munich (02/2019) and Aachen (fall 2019) including outreach talks for school classes

Special Qualifications

Computer Skills	Python, C++ LaTeX, Microsoft Office (Excel, Word, PowerPoint), Markdown, GIT	
Languages	German *(mother tongue)* English *(fluent)*	Spanish *(advanced)* Dutch *(basic)*

List of Publications

2023	**Flat Gamma-Ray Burst Afterglow Spectra up to Very-High Energies** **M. Klinger**, C Yuan, A. M. Taylor and W. Winter (in prep.)
2023	**AM³: An open-source tool for time-dependent lepto-hadronic modelling of astrophysical sources - M. Klinger**, et al. (software, in prep.)
2023	**The promise of Gamma-Ray Bursts at TeV energies** B. Reville et al. (review, in prep.) **My contribution: Summary section on GRB afterglow modelling and GRB 190114C**
2023	**The Multiwavelength Picture of GRB 221009A's Afterglow** **M. Klinger**, A. M. Taylor, T. Parsotan, et al. (submitted, arXiv:2308.13854)
2023	**Probing the multiwavelength emission scenario of GRB 190114C** **M. Klinger**, D. Tak, A. M. Taylor and S. J. Zhu (MNRAS 520 1)
2020	**FACT - Probing the Periodicity of Mrk 421 and Mrk 501** **M. Klinger**, M. Beck and F. Theißen on behalf of the FACT collaboration (ICRC proceeding)
2017	**Observation of radio galaxies with HAWC** D. Avila, R. Alfaro, A. Galván, M.M. González, N. Fraija and **M. Klinger** on behalf of the HAWC Collaboration (ICRC proceeding)

Appendix

Additional Talks

30/06/2023	**Gamma Group Seminar, DESY Zeuthen** GRB 221009A: Afterglow spectrum
21/02/2023	**DESY Astroparticle division retreat, Potsdam, Germany** Intro-slides for critical review discussion on transients (with R. Konno)
26/01/2023	**Science Club of Multimessenger School (online, incl. Weizmann Institute, Israel)** Weizsäcker-Williams Approach
18/11/2022	**Invited: Astroparticle Seminar at DESY, Zeuthen** VHE GRB Afterglows: A story about Bactrians, Dromedaries and lots of Butterflies
23/09/2021	**DESY Theory Workshop: Bright ideas for a dark universe (online due to Covid)** Understanding the Spectrum of Gamma-Ray Burst 190114C
22/04/2021	**Science Club of Multimessenger School (online, incl. Weizmann Institute, Israel)** Relativistic Shocks

Additional Intercultural and International Experience

From 01/2020	**International Helmholtz-Weizmann Research School for Multimessenger Astronomy**
08/2019	**Workshop on intercultural communication (2 days)** Combining theoretical concepts with practical application to train the ability to detect and resolve intercultural communicational problems
11/2018	**German Italian Physics Exchange (GIPE) to Trieste, Italy (4 days)**
10/2018 – 03/2019	**Mentoring of international master students in Aachen**
04/2016 – 09/2016	**Support of a Spanish exchange student in Aachen (BeBuddy)**
11/2014	**Intercultural training (2 days)**
06/2012 – 08/2012	**School exchange to Instituto de Ballester, Buenos Aires, Argentina**