Manuel Meyer

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Education & Training

***Marie Skłodowska-Curie* Research Fellow** **October 2019 - present**
Erlangen Center for Astroparticle Physics, University Erlangen-Nuremberg *Erlangen, Germany*
PI: Stefan Funk

***Feodor Lynen* Research Return Fellow** **June 2019 - October 2019**
Deutsches Elektron Synchrotron (DESY) *Hamburg, Germany*
PI: Axel Lindner

***Feodor Lynen* Research Fellow** **February 2017 - April 2019**
Kavli Institute for Particle Astrophysics and Cosmology, Stanford University *Stanford, USA*
PI: Roger Blandford

Post doctoral researcher **September 2013 - December 2016**
Oskar Klein Centre for Cosmoparticle Physics, Stockholm University *Stockholm, Sweden*
PI: Jan Conrad

Ph.D., Physics **July 2010 – July 2013**
Grade: "Magna Cum Laude" – with Honors, University of Hamburg *Hamburg, Germany*
Ph.D. thesis title: "The opacity of the Universe for high and very high energy γ-rays".
Advisor: Dieter Horns

Diploma, Physics **October 2004 – June 2010**
Grade: "Excellent, with Honors", University of Hamburg *Hamburg, Germany*
Diploma thesis title: "Spectral Modeling of the Crab Nebula and Search for oscillatory features in X-ray data induced by hidden Photons".
Advisor: Prof. Dieter Horns

Research interests

My interests lie in the field of astroparticle physics, especially γ-ray astronomy, and include γ-ray production mechanisms in active galaxies and pulsar wind nebulae, indirect searches for dark matter – in particular axions and axion-like particles – and the propagation of γ rays and cosmic rays over cosmological distances. My research has provided stringent limits on the coupling between photons and axion-like particles as well as on the strength of the intergalactic magnetic field.

Grants

***Feodor Lynen* Research Return Fellowship** **May 2019**
Sponsorship for own research position from the German Humboldt Foundation. *Bonn, Germany*
Amount of funding: 37,800€

***Marie Skłodowska-Curie* Research Fellowship** **February 2019**
Marie Skłodowska-Curie Actions Research Fellowship awarded by European Commission. *Brussels, Belgium*
Amount of funding: 175,000€

Fermi Guest Investigator Program Cycle 11 **August 2018**
Project grant awarded by NASA. Received as principal investigator.
Amount of funding: $23,000

Fermi Guest Investigator Program Cycle 10 **August 2017**
Project grant awarded by NASA. Received as Co-investigator.
Amount of funding: $60,000

***Feodor Lynen* Research Fellowship** **October 2016**
Sponsorship for own research position from the German Humboldt Foundation. *Bonn, Germany*
Amount of funding: approximately 126,000€

Awards

Marie Skłodowska-Curie Actions Seal of Excellence **April 2017**
Award for proposal submitted under the Horizon 2020's Marie Skłodowska-Curie actions *Brussels, Belgium*

***Otto Stern* Prize for best diploma thesis** **December 2010**
Best diploma thesis in physics of the 2010 summer term, University of Hamburg *Hamburg, Germany*

Collaboration Memberships

Any Light Particle Search (ALPS) Collaboration **2019 – present**
Member

***Fermi* Gamma Ray Space Telescope Collaboration** **2013 – present**
Member, former coordinator of the dark matter and new physics working group

Cherenkov Telescope Array (CTA) Consortium **2012 – present**
Deputy convener of the Dark Matter and Exotic Physics working group

High Energy Stereoscopic System (H.E.S.S.) Collaboration **2012 – present**
Member, former deputy convener of the astroparticle working group

Papers and Conference Presentations

23 publications in peer-reviewed journals with major contribution (11 as corresponding author), and 1 article submitted for publication. Co-author of more than 40 publications of the H.E.S.S. collaboration, 10 publications of the *Fermi*-LAT collaboration, 22 conference proceedings, and 4 white papers. According to NASA ADS, the publications have in total more than 4000 citations with an h index of 30. A publication list with all collaboration papers can be found on ORCID. A full publication list is provided in a separate document. Contributed to 25 conferences, workshops, and seminars (14 invited).

Selected Corresponding Author Publications

1. **M. Meyer**, J. D. Scargle, and R. D. Blandford, *Characterizing the gamma-ray variability of the brightest flat spectrum radio quasars observed with the Fermi LAT*, ApJ, Vol. 877, No. 1, 39, p. 39, 2019, arXiv: 1902.02291 [astro-ph.HE].
2. M. Ackermann et al. (*Fermi*-LAT Collaboration, including **M. Meyer**), *The Search for Spatial Extension in High-latitude Sources Detected by the Fermi Large Area Telescope*, ApJS, Vol. 237, 32, p. 32, 2018, arXiv: 1804.08035 [astro-ph.HE].
3. **M. Meyer**, M. Giannotti, A. Mirizzi, M. Sánchez-Conde, and J. Conrad, *The Fermi Large Area Telescope as a Galactic Supernovae Axionscope*, Phys. Rev. Lett. Vol. 118, No. 1, p. 011103, 2017, arXiv: 1609.02350 [astro-ph.HE].
4. **M. Meyer**, J. Conrad, and H. Dickinson, *Sensitivity of the Cherenkov Telescope Array to the Detection of Intergalactic Magnetic Fields*, ApJ, Vol. 827, No. 2, p. 147, 2016, arXiv: 1603.03431 [astro-ph.HE]
5. M. Ajello et al. (*Fermi*-LAT Collaboration, including **M. Meyer**), *Search for Spectral Irregularities due to Photon-Axionlike-Particle Oscillations with the Fermi Large Area Telescope*, Phys. Rev. Lett. (Editor's suggestion), Vol. 116, No. 16, 161101 2016, arXiv: 1603.06978 [astro-ph.HE].

Selected Invited Conference Presentations

15th Patras Workshop on Axions, WIMPs, and WISPs **June 2019**
Freiburg, Germany

7th International *Fermi* Symposium **October 2017**
Garmisch-Partenkirchen, Germany

South American Workshop on Dark Matter **May 2017**
ICTP-SAIFR, Sao Paulo, Brazil

12th Patras Workshop on Axions, WIMPs, and WISPs **June 2016**
Jeju Island, South Korea

Gamma-ray Blazar Workshop **March 2015**
SLAC, Stanford, CA, USA

Selected Contributed Conference Presentations

1st CTA Symposium **May 2019**
Bologna, Italy

8th International *Fermi* Symposium **October 2018**
Baltimore, MD, USA

TeV Particle Astrophysics 2018 **August 2018**
Berlin, Germany

TeV Particle Astrophysics 2017 **August 2017**
Columbus, OH, USA

Dark Matter at LHC workshop **April 2017**
Irvine, CA, USA

Supervision

Co-supervisor of Milena Crnogorcevic's masters thesis **2018**
University of Maryland *Maryland, USA*

Supervisor of Nickolas Kokron's research project during his PhD rotation **2017**
Stanford University *Stanford, CA, USA*

Supervisor of Axel Erbing's bachelors thesis **2015**
Stockholm University *Stockholm, Sweden*

Teaching and Formal Training in Teaching

Courses and Classes taught

Data Analysis II and Introduction to Machine Learning **October 2019**
Friedrich Alexander University Erlangen-Nuremberg *Erlangen, Germany*
Lectures and exercise classes given for masters students in winter term 2019/2020.

Lectures for pre-collegiate students **July 2018**
Stanford University *Stanford, CA, USA*
Lectures given for high school students during particle physics and cosmology summer courses.

Lab assistant for undergraduate physics students **2011-2012**
University of Hamburg *Hamburg, Germany*
Supervision of small groups of students for a week-long labs. Included teaching, supervision, feedback and grading.

Tutor for undergraduate physics students **2007 – 2009**
University of Hamburg *Hamburg, Germany*

Training

Stanford Scientific Teaching Summer Institute **August 2018**
Stanford University *Stanford, CA, USA*
Three day workshop on science-based teaching, inclusion, and equity.

Course "An Introduction to Evidence-Based Undergraduate STEM Teaching" **Fall 2017**
Stanford University *Stanford, CA, USA*
Online course offered by the Center for the Integration of Research Teaching and Learning, stemteachingcourse.org.
Passed with distinction.

Outreach

Public presentation "Supermassive black holes as particle accelerators" **January 2019**
Given at the "Silicon Valley Nerd Nite" public outreach series *San Jose, CA, USA*

Contribution to SLAC News article about own research — **October 2018**
Published on official SLAC website — *Menlo Park, CA, USA*

Public presentation "Shining light through walls with dark matter" — **February 2018**
Given at the "Astronomy on tap" public outreach series — *San Francisco, CA, USA*

Contribution to NASA News article about own research — **August 2016**
Published on official NASA website — *Greenbelt, Md., USA*

News article and Blog post about own research — **April 2016**
Published on the websites of Stockholm University — *Stockholm, Sweden*

Public lecture "Jakten på den mörka materian med ljus" (in Swedish) — **November 2015**
Given at the Ericsson's astronomy club — *Stockholm, Sweden*

Advisor for high school students in the DESY school labs — **2009 – 2010**
DESY Hamburg — *Hamburg, Germany*

Computer skills

Operating systems: Mac OS, Ubuntu, Windows

Programming languages: python, Root, C++, C

Data analysis: *Fermi*-LAT (FERMIPY and *Fermi Tools*); H.E.S.S.; CTA (CTOOLS and GAMMAPY); *Swift* XRT, NuSTAR, and XMM-Newton (pipelines and XSPEC); ALMA (CASA)

Document preparation: LaTeX, Keynote, OpenOffice, Microsoft Office

Reviewing

Member of scientific organizing committees: "Recontres du Vietnam: Very High Energy Phenomena in the Universe" 2018 conference; "The puzzle of dark matter 2018" conference

Proposal reviewer: NASA Fermi Guest Investigator Program Cycle 10, NASA's Astrophysics Theory Program (ATP13)

Journal reviewer: Physical Review Letters, Physical Review D, Astrophysical Journal (ApJ), the Journal of Cosmology and Astroparticle Physics (JCAP), Monthly Notes of the Royal Astronomical Society (MNRAS), European Physical Journal C