
Curriculum Vitae

PD Dr. Frank M. Rieger

Personal Data

Name	Frank M. Rieger
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Web page	http://www.frank-rieger.com
Address (Office)	Max-Planck-Institut für Plasmaphysik (IPP), Boltzmannstraße 2 85748 Garching, and ITP Univ. Heidelberg, Philosophenweg 12, 69120 Heidelberg
Born	1971, Pforzheim, Germany
Citizenship	German
Family	Married, two children

Positions

2023 -	Staff Scientist, IPP Garching, Germany
2021 - 2023	Senior Researcher (DFG), ITP Univ. Heidelberg, Germany
2015 - 2020	Heisenberg Research Fellow (DFG), Univ. Heidelberg, Germany
2007 - 2014	LEA Senior Researcher (MPG/CNRS), MPIK Heidelberg, Germany
2005 - 2007	Cosmograd Fellow (HEA), UCD Dublin, Ireland
2003 - 2005	Marie-Curie Postdoctoral Fellow (EU), UCD Dublin, Ireland
2001 - 2002	Postdoctoral Researcher (DFG), Univ. Würzburg, Germany

Qualification

2014	Habilitation, Lecturer (Privat-Dozent), Univ. Heidelberg
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Education

1997 - 2001	Ph.D. in Physics, Univ. Göttingen, Germany
1991 - 1997	Diploma in Physics, Univ. Heidelberg, Germany

Expertise

- High Energy Astrophysics, Cosmic Particle Acceleration, Very High Energy Gamma Rays, Ultra High Energy Cosmic Rays, Astrophysical Plasmas, AGN, Supermassive Black Holes, Relativistic Jets

Research Responsibilities

- Member International Advisory Committee 'Texas Symposium on Relativistic Astrophysics' (2010-)
- Member International Max Planck Research School for Astronomy and Cosmic Physics, Univ. Heidelberg
- Member of the H.E.S.S. and CTA Collaboration
- Associate CDY Institute "The Extreme Non-Thermal Universe" (2021-)
- Scientific Organisator of Conferences in and outside Germany
- International Proceedings Editor, American Institute of Physics (2008-)
- Coordinator Astrophysics, activities & procurement, MPIK Heidelberg (2007-2015)
- Ph.D. supervisor and examiner, Univ. Heidelberg and Univ. of Paris
- External consultant 'Cosmic rays powered by astrophysical compact objects', SR-NSF Georgia

Transferable Skills

- certified Leadership Expert
- certified Project Management Associate (IPMA Level D)
- Effective Communication
- Analytical Reasoning
- Problem Solving

Recognitions & Fellowships

- DFG Research Grant, 2021
- Heisenberg Fellowship, 2014
- Bruno Rossi Prize with the H.E.S.S. Collaboration, 2010
- LEA Fellowship, 2007
- Cosmogrid Fellowship, 2005
- Marie Curie Fellowship, 2003

Publication summary (refereed only - ADS)

- Total number of papers: 223
- Total number of citations: 16665
- Average citation per paper: 74,7
- h-index: 60

Books & editorial work

- High Energy Gamma-Ray Astronomy, with F. Aharonian and W. Hofmann, AIP 1792 (2017)
- High Energy Gamma-Ray Astronomy, with F. Aharonian and W. Hofmann, AIP 1505 (2012)
- Texas Symposium on Relativistic Astrophysics, with F. Aharonian and W. Hofmann, AIP 1381 (2011)
- High Energy Gamma-Ray Astronomy, with F. Aharonian and W. Hofmann, AIP 1085 (2009)

Recent Invited Talks, Lectures and Reviews (since 2018)

- Supermassive Black Holes as Cosmic Powerhouses - A high energy perspective, API Colloquium, Amsterdam, March 2018
- Radio Galaxies: Large-scale Jets and Lobes, Dublin Summer School on High Energy Astrophysics, Dublin, June 2018
- Energetic Particle Acceleration in Shearing Flows, 18th Annual Astrophysics Conf., Pasadena, Feb. 2019
- Cosmic Particle Accelerators: Sources and Mechanisms, ISAPP Summer School, Heidelberg, May 2019
- Magnetospheric Gamma-Ray Emission in AGN, Workshop on Pulsar and Black Hole Magnetospheres, GSFC, Maryland Washington/US, June 2019
- UHE Cosmic Rays and AGN jets, HEPRO, Barcelona, July 2019
- Powering AGN activity - the supermassive black hole in M87, ESO Seminar, Garching, Nov. 2019
- AGN as potential ultra-high energy cosmic-ray sources, Origins Cluster, IPP Garching, March 2020
- VHE gamma-rays from the large-scale jet in Centaurus A, DESY Seminar, Zeuthen, May 2020
- Cosmic Particle Acceleration (5 lectures), Astronomy Winter School Taiwan, January 2021
- High Energy Physics of AGN, Online AGN Meeting, Univ. Kashmir, July 2021
- Theory of Gamma-Ray Loud AGN, 7th Intern. Symposium on High-Energy Gamma-Ray Astronomy, Barcelona, July 2022
- Ultra-High Energy Cosmic Rays from Relativistic AGN Jets, Golden Univ. Conference, Vietnam, July 2022
- Supermassive Black Holes as Cosmic Particle Accelerators, Seminar, IPP Garching, September 2022
- Supermassive Black Holes as Cosmic Particle Accelerators, Seminar, IAP Paris, December 2022
- Supermassive Black Holes as Cosmic Particle Accelerators, Observatoire Paris-Meudon, December 2022
- Particle Acceleration in Relativistic Shearing Flows, CDY Spring Series, February 2023
- Particle Acceleration in Relativistic Outflows in Gamma-Ray Binaries, VGGRS Workshop, Innsbruck, April 2023
- The Galactic Center Black Hole as Cosmic Particle Accelerator, Workshop on UHE Gamma-Rays, Yerevan, October 2023.

Reviewing

- Referee for scientific journals: ApJ, A&A, APh, Ap&SS, EJPh, IJMPD, PASA, NewAR, Galaxies
- Referee for funding agencies: Deutsche Forschungsgemeinschaft (DFG), Grant Agency of the Academy of Science of the Czech Republic, National Science Centre Poland, DIM ACAV+ France, National Science Foundation of South Africa, Science and Technology Facilities Council (UK)
- Referee for Alexander von Humboldt Stiftung, Deutsche Physikalische Gesellschaft (Prize)

Teaching and supervision

- Privat-Dozent, Univ. Heidelberg (Habilitation 2014):
 - regular lecture courses and seminars on High Energy Astrophysics, Cosmic Particle Accelerators, Particle Acceleration in Astrophysical Plasma, and Astroparticle Physics.
- Member International Max Planck Research School for Astronomy and Cosmic Physics at the University of Heidelberg (IMPRS-HD, 2008-).
- Supervisor of PhD students at MPIK and Univ. Heidelberg
- lecturer at 47th Heidelberg Physics Graduate Days, Heidelberg 2021
- lecturer at Taiwan Astronomy Winter School, Taiwan 2021
- lecturer at ISAPP Summer School, MPIK Heidelberg 2019
- lecturer at Dublin Summer School on High Energy Astrophysics, Dublin 2011 & 2018

Organization of international conferences

- High Energy Phenomena in Relativistic Outflows, Paris 2023
- 7th International Symposium on High-Energy Gamma-Ray Astronomy, Barcelona 2022 [Co-Chair LOC]
- 30th Texas Symposium on Relativistic Astrophysics, Portsmouth 2019
- Very High Energy Phenomena Around Supermassive Black Holes, Yerevan 2019 [Chair].
- International Conference on Black Holes as Cosmic Batteries, Foz do Iguau, Brazil 2018
- 29th Texas Symposium on Relativistic Astrophysics, Cape Town 2017
- 6th International Symposium on High-Energy Gamma-Ray Astronomy, Heidelberg 2016 [Co-Chair LOC & Editor of Proceedings].
- 28th Texas Symposium on Relativistic Astrophysics, Geneva 2015
- 27th Texas Symposium on Relativistic Astrophysics, Dallas 2013
- 4th Meeting on High Energy Phenomena in Relativistic Outflows, Heidelberg 2013 [SOC/Chair LOC & Editor of Proceedings].
- 5th International Symposium on High-Energy Gamma-Ray Astronomy, Heidelberg 2012 [Co-Chair LOC & Editor of Proceedings].
- 25th TEXAS Symposium on Relativistic Astrophysics, Heidelberg 2010 [Co-Chair LOC & Editor of Proceedings].
- The GeV to TeV Connection, Ringberg 2010
- High Energy Gamma-Rays and Neutrinos from Extra-Galactic Sources, Heidelberg 2009
- 4th International Symposium on High Energy Gamma-Ray Astronomy, Heidelberg 2008 [LOC & Editor of Proceedings].
- High Energy Phenomena in Relativistic Outflows, Dublin 2007 [Co-Chair LOC & Editor of Proceedings].

Public Outreach

- Organizer of Public Science Lectures, Stadthalle Heidelberg (R. Genzel, M. Longair, H. Lesch)
- Science & Public Outreach Event with the President of Armenia (2019)
- Contributor Jahrbuch der Max-Planck-Gesellschaft (2012), Einstein Online (2014), Physik Journal (2019), Quanta Magazine/Interview (2021).

Ten most important publications

- G. Katsoulakos, F.M. Rieger, *Gap-type Particle Acceleration in the Magnetospheres of Rotating Super-massive Black Holes*, *Astrophys. J.* 895 (2020), 99
- H.E.S.S. Collaboration (Abdalla et al.), *Resolving acceleration to very high energies along the jet of Centaurus A*, *Nature* 582 (2020), 356
- F.M. Rieger, *An Introduction to Particle Acceleration in Shearing Flows*, *Galaxies* 7 (2019), 78 (invited review)
- R.-Y. Liu, F.M. Rieger, F.A. Aharonian, *Particle Acceleration in Mildly Relativistic Shearing Flows: The Interplay of Systematic and Stochastic Effects, and the Origin of the Extended High-energy Emission in AGN Jets*, *Astrophys. J.* 842 (2017), 39
- F.M. Rieger, E. de Ona-Wilhelmi & F.A. Aharonian, *TeV Astronomy*, *Frontiers of Physics* 8, 714 (2013) (invited review).
- Levinson A., Rieger F.M., *Variable TeV emission as a manifestation of jet formation in M87?*, *Astrophys. J.* 730 (2011), 123
- E. Lefa, F.M. Rieger, and F. Aharonian, *Formation of Very Hard Gamma-Ray Spectra in Blazars in Leptonic Models*, *Astrophys. J.* 740 (2011), 64.
- F.M. Rieger, F.A. Aharonian, *Variable VHE emission from non-blazar AGNs*, *Astron. Astrophys.* 479 (2008), L5.
- F.M. Rieger, P. Duffy, *Shear acceleration in relativistic astrophysical jets*, *Astrophys. J.* 617 (2004), 155.
- J.G. Kirk, F.M. Rieger & A. Mastichiadis, *Particle acceleration and synchrotron emission in blazar jets*, *A&A* 333 (1998), 452