# Ruhr-Universität Bochum

## Astronomisches Institut

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## 0 Allgemeines

## 1 Personal und Ausstattung

### 1.1 Personalstand

*Direktoren und Professoren: 7*

Prof. Dr. Dominik Bomans (apl. Prof)
Prof. Dr. Rolf Chini (senior researcher)
Prof. Dr. Ralf-Jürgen Dettmar
Prof. Dr. Anna Franckowiak
Prof. Dr. Catherine Heymans (Gastprofessorin; University of Edinburgh)
Prof. Dr. Hendrik Hildebrandt (Geschäftsführender Direktor)
Prof. i.R. Dr. Joachim Dachs verstarb am 29.9.2021 in Tübingen.

*Wissenschaftliche Mitarbeiter: 14*

Dr. Björn Adebahr
Dr. Andrej Dvornik
Dr. Klaus Fuhrmann
Priv.-Doz. Dr. Martin Haas
Dr. Peter Kamphuis
Dr. Thomas Luks
Dr. Constance Mahony
Dr. Alex Malz
Dr. Francisco Pozo-Nuñez
Dr. Robert Reischke
Dr. Angus Wright
Dr. Mijin Yoon
Dr. Vandad Fallah Ramazani
Dr. Massimiliano Lincetto

*Doktoranden: 16*
Anna Berger
Julia Blex
Susanne Blex
Lukas Dirks
Zoreh Ghaffari
Marianne Langener
Ancla Müller
Martin Ochmann
Catalina Sobrino Figaredo
Michael Stein
Fabian Symietz
Jan Luca van den Busch
Anastasiia Omeliukh
Sven Weimann
Anna Wittje
Anatolii Zenin

*Bachelor- und Masterstudenten: 19*
Aisha Bachmann
Stefan Bendig
Henning Bergmann
Julius Feldmann
Leon Gawlytta
Nicola Hunfeld
Selim Incirkus
Alexander Kloos
Niklas Kroschinski
Elena Marci-Böhnke
Marcel Mielach
Ulrich Schilling
Sam Taziaux
Deniz Teterra
Denise Trippe
Pascal Vennedey
Maurice Weigelt
Frederike Apel
Andreas Willeke

*Sekretariat und Verwaltung: 1,5*

Bettina Göldner

Vera Nowak

*Technische Mitarbeiter: 3*

Tim Falkenbach

Meike Jahn (beurlaubt)

Christian Vilter

*Gäste: 4*

Prof. Dr. Susanne Hüttemeister (apl. Prof.)

Helmut Niemsch

Prof. Dr. Elmar Träbert (apl. Prof.)

Priv.-Doz. Dr. Kerstin Weis

### 1.2 Instrumente und Rechenanlagen

## 2 Wissenschaftliche Arbeiten

## 3 Akademische Abschlussarbeiten

### 3.1 Bachelorarbeiten

*Abgeschlossen: 10*

Apel, Frederike: "Modeling the leptonic origin of the low-frequency emission from blazar PKS 1502+106", Bochum, Astronomisches Institut, Bachelorarbeit, 2021

Bratescu, Anna: "Determining Ages, Evolutionary States and Environment of Luminous Blue Variables (LBV) and LBV CandidatesNGC 2403 Analysing Hubble Space Telescope photometric data", Bochum, Astronomisches Institut, Bachelorarbeit, 2021

Bruemmer, Merlin: "Suche nach und Analyse von massiven Sternen in der Galaxie NGC 1313 unter verwendung von HST-Multifilter-Bildddaten und ESO/MUSE IFU-Spektroskopie", Bochum, Astronomisches Institut, Bachelorarbeit, 2021

Kroschinski, Niklas: "Optimising Photometric Redshift Estimation for Weak Gravitational Lensing Tomography with KiDS-Legacy", Bochum, Astronomisches Institut, Bachelorarbeit, 2021

Marci-Böhnke, Elena: "Optimising Tomographic Binning for KiDS-Legacy Cosmic Shear Measurements", Bochum, Astronomisches Institut, Bachelorarbeit, 2021

Matta, Abhishek: "Untersuchung der Ausrichtung von Jets aktiver galaktischer Kerne bei 1,4GHz mittels Apertif", Bochum, Astronomisches Institut, Bachelorarbeit, 2021

Neuhaus, Janine: "Analysis of Environment and Photometric Variablity of the Massive, Recurrent Transient in the Spiral Galaxy NGC 4559", Bochum, Astronomisches Institut, Bachelorarbeit, 2021

Post, Julian: "Analyse der Ionisationsprozesse und Struktur des bipolaren planetarischen Nebels Hubble 5", Bochum, Astronomisches Institut, Bachelorarbeit, 2021

Teuchert, Jannik: "Searching for and Analysing of Low Frequency Radio Emission in a Sample of Dusty Hyperstarburst Galaxies", Bochum, Astronomisches Institut, Bachelorarbeit, 2021

Weigelt, Martin Maurice: "Analyse der Wechselwirkungskomponenten von Galaxien mittels tiefer Photometrie von Amateuteleskopaufnahmen", Bochum, Astronomisches Institut, Bachelorarbeit, 2021

### 3.2 Masterarbeiten

*Abgeschlossen: 2*

Wittje, Anna: "Determining redshift distributions of KiDS weak lensing source with cross correlations", Bochum, Astronomisches Institut, Bachelorarbeit, 2021

Incirkus, Selim: "Indentifying and Analysing the Properties of CIII Emitting Galaxies in the SDSS eBOSS Survey", Bochum, Astronomisches Institut, Bachelorarbeit, 2021

### 3.3 Dissertationen

*Abgeschlossen: 1*

Sobrino Figaredo, Catalina: "Dust Reverberation Mapping of the Quasar 3C273: Central Geometry and Lag-Luminosity Relation", Bochum, Astronomisches Institut, Dissertation, 2021

### 3.4 Habilitationen

*Abgeschlossen: Anzahl*

## 4 Veröffentlichungen

### 4.1 In referierten Zeitschriften (90)

Aartsen, M. G., Abbasi, R., Ackermann, M., et al.: IceCube-Gen2: the window to the extreme Universe. Journal of Physics G Nuclear Physics **48** (2021), 060501

Aartsen, M. G., Abbasi, R., Ackermann, M., et al.: Measurements of the time-dependent cosmic-ray Sun shadow with seven years of IceCube data: Comparison with the Solar cycle and magnetic field models. Phys. Rev. D **103** (2021), 042005

Aartsen, M. G., Ackermann, M., Adams, J., et al.: Searches for neutrinos from cosmic-ray interactions in the Sun using seven years of IceCube data. Journ. Cosmol. Astropart. Phys. **2021** (2021), 025

Abbasi, R., Ackermann, M., Adams, J., et al.: A Search for Time-dependent Astrophysical Neutrino Emission with IceCube Data from 2012 to 2017. Astrophys. J. **911** (2021), 67

Abbasi, R., Ackermann, M., Adams, J., et al.: A convolutional neural network based cascade reconstruction for the IceCube Neutrino Observatory. Journal of Instrumentation **16** (2021), P07041

Abbasi, R., Ackermann, M., Adams, J., et al.: A muon-track reconstruction exploiting stochastic losses for large-scale Cherenkov detectors. Journal of Instrumentation **16** (2021), P08034

Abbasi, R., Ackermann, M., Adams, J., et al.: All-flavor constraints on nonstandard neutrino interactions and generalized matter potential with three years of IceCube DeepCore data. Phys. Rev. D **104** (2021), 072006

Abbasi, R., Ackermann, M., Adams, J., et al.: Follow-up of Astrophysical Transients in Real Time with the IceCube Neutrino Observatory. Astrophys. J. **910** (2021), 4

Abbasi, R., Ackermann, M., Adams, J., et al.: IceCube high-energy starting event sample: Description and flux characterization with 7.5 years of data. Phys. Rev. D **104** (2021), 022002

Abbasi, R., Ackermann, M., Adams, J., et al.: LeptonInjector and LeptonWeighter: A neutrino event generator and weighter for neutrino observatories. Computer Physics Communications **266** (2021), 108018

Abbasi, R., Ackermann, M., Adams, J., et al.: Measurement of the high-energy all-flavor neutrino-nucleon cross section with IceCube. Phys. Rev. D **104** (2021), 022001

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Abbasi, R., Ackermann, M., Adams, J., et al.: Search for Multi-flare Neutrino Emissions in 10 yr of IceCube Data from a Catalog of Sources. Astrophys. J. Lett. **920** (2021), L45

Acciari, V. A., Ansoldi, S., Antonelli, L. A., et al.: First detection of VHE gamma-ray emission from TXS 1515-273, study of its X-ray variability and spectral energy distribution. Monthly Not. R. Astron. Soc. **507** (2021), 1528-1545

Acciari, V. A., Ansoldi, S., Antonelli, L. A., et al.: Search for Very High-energy Emission from the Millisecond Pulsar PSR J0218+4232. Astrophys. J. **922** (2021), 251

Adams, C. B., Benbow, W., Brill, A., et al.: Observation of the Gamma-Ray Binary HESS J0632+057 with the H.E.S.S., MAGIC, and VERITAS Telescopes. Astrophys. J. **923** (2021), 241

Aguena, M., Avestruz, C., Combet, C., et al.: CLMM: a LSST-DESC cluster weak lensing mass modeling library for cosmology. Monthly Not. R. Astron. Soc. **508** (2021), 6092-6110

Ajello, M., Baldini, L., Ballet, J., et al.: Gamma Rays from Fast Black-hole Winds. Astrophys. J. **921** (2021), 144

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Asgari, Marika, Lin, Chieh-An, Joachimi, Benjamin, et al.: KiDS-1000 cosmology: Cosmic shear constraints and comparison between two point statistics. Astron. Astrophys. **645** (2021), A104

Ayala Solares, H. A., Coutu, S., DeLaunay, J. J., et al.: Multimessenger Gamma-Ray and Neutrino Coincidence Alerts Using HAWC and IceCube Subthreshold Data. Astrophys. J. **906** (2021), 63

Baalmann, L. R., Scherer, K., Kleimann, J., et al.: Simulating observable structures due to a perturbed interstellar medium in front of astrospheric bow shocks in 3D MHD. Astron. Astrophys. **650** (2021), A36

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Li, Shun-Sheng, Kuijken, Konrad, Hoekstra, Henk, et al.: KiDS+VIKING-450: An internal-consistency test for cosmic shear tomography with a colour-based split of source galaxies. Astron. Astrophys. **646** (2021), A175

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fields, and particle re-acceleration. Monthly Not. R. Astron. Soc. **508** (2021), 5326-5344

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Schrabback, Tim, Hoekstra, Henk, Van Waerbeke, Ludovic, et al.: Tightening weak lensing constraints on the ellipticity of galaxy-scale dark matter haloes. Astron. Astrophys. **646** (2021), A73

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Hendrik Hildebrandt