

CONTACT INFORMATION

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EDUCATION

- 2018** **Ph.D., Astronomy and Astrophysics (GPA: 4.0, 18.08.2018)**
Steward Observatory, The University of Arizona, Arizona, AZ, USA
Thesis title: "The Formation and Evolution of Supermassive Black Holes: The Extremely Luminous Quasar Survey"
Advisor: Dr. Xiaohui Fan
- 2014** **M.Sc., Physics (Grade: 1.0, 01.09.2014)**
Christian-Albrechts-Universität zu Kiel, Kiel, Germany
Thesis title: "Evolution of Supermassive Black Holes and their host galaxies"
Advisor: Dr. Xiaohui Fan, Prof. Dr. Wolfgang J. Duschl
- 2011** **B.Sc., Physics (Grade: 1.7, 19.10.2011)**
Christian-Albrechts-Universität zu Kiel, Kiel, Germany
Thesis title: "Temporal evolution of self-gravitating accretion discs: self-similar solutions?"
Advisor: Prof. Dr. Wolfgang J. Duschl

PROFESSIONAL APPOINTMENTS

- since 2023 **Emmy Noether Junior Research Group Leader**
Hamburg University, Hamburg, Germany
- 2021 — 2023 **Postdoctoral Researcher** in the group of Dr. Joseph Hennawi
Leiden University, Leiden, The Netherlands
- 2018 — 2021 **Postdoctoral Researcher** in the groups of Dr. Eduardo Bañados and Dr. Fabian Walter
Max Planck Institute for Astronomy, Heidelberg, Germany
- 2012 — 2018 **Graduate research and teaching assistant**
Steward Observatory, University of Arizona, USA

PUBLICATIONS

47 refereed publications since 2015, with a total of > 2400 citations and an h-index of 27.
(9 as first author, 2 as second author led by an advised student)
A complete publication list is enclosed and available on [NASA/ADS](#).

GRANTS & THIRD PARTY FUNDING

- 2022 **Emmy Noether Independent Junior Research Group (1,750,101 €)**
Deutsche Forschungsgemeinschaft (DFG)
- 2015 **Science PI: HST, Cycle 23, Archival Proposal 14312 (\$149,266)**
Space Telescope Science Institute

AWARDS, HONORS, AND SCHOLARSHIPS

- 2019 **Best Poster Prize**
IAU Symposium 352, Portugal, June 2019
- 2012 **Fulbright Scholarship**, University of Arizona, 2012–2013
The German-American Fulbright Commission
- 2011 **Annual Award for excellent academic achievements and commitment**
Association for the support of the Faculty of Mathematics and Natural Sciences, Kiel University
- 2008 **Student Scholarship**, 2008–2014
German Academic Scholarship Foundation (Studienstiftung des deutschen Volkes)

TALKS

Invited Talks and Colloquia

- 2024 **Extragalactic Astrophysics Symposium**, May 2024, Heidelberg, Germany
"The emergence and growth of supermassive black holes in the early Universe"
- 2024 **AEI Seminar**, Feb. 2024, Potsdam, Germany
"The Emergence of Quasars - Growing Supermassive Black Holes in the Early Universe"
- 2023 **Astrophysics & Machine Learning Symposium**, June. 2023, Hamburg, Germany
"Structure evolution in the early Universe: Supermassive Black Holes & Machine Learning"
- 2022 **Königstuhl Colloquium**, Jan. 2022, Heidelberg, Germany
"The Rise and Fall of Quasars - The evolution of quasars across cosmic time"
- 2020 **Early Universe/Reionization Era Conversations at Arizona**, Sep. 2020 Tucson, Arizona, USA
"The X-SHOOTER/ALMA sample and the evolution of reionization-era quasars"
- 2018 **LSST-2018 Project and Community Workshop**, Aug. 2018, Tucson, Arizona, USA
"AGN Selection Opportunities and Challenges with the LSST"
- 2016 **Seismology of the Sun and the Distant Stars**, Jul. 2016, Angra do Heroísmo, Portugal
"Astero seismic Constraints on the Evolutionary Models of Hot Subdwarfs"

Selected Seminar Talks and Conference Contributions

- 2024 **"EAS 2024"**, Padovca, Italy, Jul. 2024
"Placing a Compact, Red AGN at $z=7.27$ in Perspective"
- 2023 **"First Light Conference"**, Boston, USA, Jun. 2023
"A first step towards mapping reionisation epoch quasar light-echoes with JWST"
- 2022 **Colloquium**, Nov. 2022, Hamburg Observatory, Hamburg University
"The Rise and Fall of Quasars"
- 2022 **"What drives the growth of black holes: a decade of reflection"**, Reykjavik, Iceland, Sep. 2022
"Supermassive Black Hole Growth in the Reionization Era"
- 2022 **Quasars and Galaxies through Cosmic Time**, virtual conference, Jan. 2022
"Insights into quasar evolution in the first two billion years after the Big Bang"
- 2021 **MPIA Galaxy Coffee**, Feb. 2021, Max Planck Institute for Astronomy, Heidelberg, Germany
"The X-SHOOTER/ALMA sample and the evolution of reionization-era quasars"
- 2020 **Extragalactic group seminar**, Nov. 2020, Institute of Astronomy, Cambridge, UK
"The X-SHOOTER/ALMA sample and the evolution of reionization-era quasars"
- 2020 **Summer All Zoom Epoch of Reionization Astronomy Conference**, virtual conference, Jul. 2020
"First Results of the X-SHOOTER/ALMA Sample of Quasars in the Epoch of Reionization"
- 2019 **NOIRLab FLASH Talk**, Nov. 2019, NSF's NOIRLab, Tucson, Arizona, USA
"The Extremely Luminous Quasar Surveys and the Bright-End Quasar Luminosity Function at Cosmic Noon"
- 2019 **Cosmic Evolution of Quasars: from the First Light to Local Relics**, Oct. 2019, KIAA-PKU, China
"The Extremely Luminous Quasar Surveys and the Quasar Luminosity Function at Cosmic Noon"
- 2019 **ESO AGN Club**, May 2019, European Southern Observatory, Garching, Germany
"The Extremely Luminous Quasar Surveys"
- 2018 **MPIA Galaxy Coffee**, Nov. 2018, Max Planck Institute for Astronomy, Heidelberg, Germany
"The Extremely Luminous Quasar Survey and the Quasar Luminosity Function"
- 2018 **NOAO FLASH Talk**, National Optical Astronomy Observatory, Tucson, Arizona, USA
"The Extremely Luminous Quasar Survey (ELQS) and the Bright-End Quasar Luminosity Function at $z=2.84.5$ "
- 2018 **AAS Meeting #231, PhD Talk**, Jan. 2018, Washington D.C., USA
"The Extremely Luminous Quasar Survey (ELQS) and the high- z bright-end Quasar Luminosity Function"
- 2017 **Annual Meeting of the Astronomische Gesellschaft**, Sep. 2017, Göttingen, Germany
"The Extremely Luminous Quasar Survey (ELQS) in SDSS"
- 2015 **7th Meeting on Hot Subdwarf Stars and Related Objects**, Jul. 2016, Oxford, UK
"MESA Stellar Evolution Models of sdB Stars"

- 2013 **6th Meeting on Hot Subdwarf Stars and Related Objects**, May 2013, Arizona, USA
 "Exploring stellar evolution models of sdB stars using MESA with convective overshoot"

APPROVED TELESCOPE PROPOSALS

Proposals as Principal Investigator

- 2024 **JWST** (12 h; GO 5734)
 "Placing a $z=7.27$ AGN in context with cosmic structure formation"
- 2021 **IRAM/NOEMA** (13 h)
 "NOEMA's unobscured view on the host galaxies of a $z \sim 3.3$ binary quasar"
- 2020 **IRAM/NOEMA** (50 h)
 "Unveiling the host galaxies of the most luminous quasars at $z \sim 3.5$ "
- 2019 **IRAM/NOEMA** (4 h)
 "Unveiling the host galaxy of an ultra-luminous super-Eddington quasar at $z = 3.7$ "
- 2018 — 2020 **LBT/LUCI** (14 h)
 "Weighing the most massive accreting black holes at Cosmic Noon"
- 2018 — 2020 **Gemini/GNIRS** (15 h)
 "Weighing the most massive accreting black holes at cosmic noon"
- 2017 — 2018 **Southern Astrophysical Research Telescope (SOAR)** (14 nights), CTIO
 "The Southern Extremely Luminous Quasar Survey (ELQS) at $z \approx 3 - 5$ "
- 2018 **Vatican Advanced Technology Telescope/MMT** (7/1 nights), University of Arizona
 "The Extremely Luminous Quasar Survey in PanSTARRS 1"
- 2014 — 2017 **Vatican Advanced Technology Telescope/MMT** (43/5 nights), University of Arizona
 "The Extremely Luminous quasar Survey"
- 2015 **HST, Cycle 23**, Archival Proposal 14312 (\$149,266 - science PI)
 "Constraining the merger pair fraction of ~ 1000 quasars with a new catalog of PSF subtracted images"

Selected Proposals as Co-Investigator

- 2024 **JWST Cycle 3**
 GO 5893 (PI: Kakiichi, 263 h): "COSMOS-3D: A Legacy Spectroscopic/Imaging Survey of the Early Universe"
 GO 4691 (PI: Yang, 16 h): "Investigating an Extreme [OIII] Outflow Discovered in a Reionization-era Luminous Quasar"
 GO 5645 (PI: Farina, Survey program): "A 3D view of the first QSOs: A JWST/NIRSpec survey program"
- 2023 **JWST Cycle 2**
 GO 3079 (PI: Eilers, 20 h): "BEES: Black hole Extended Emission Search"
 GO 4056 (PI: Farina, 9 h): "Shedding Light on Early Structure Formation"
 GO 3859 (PI: Onoue, 11 h): "Full Characterization of Starlight from a $z=6.4$ Quasar Host Galaxy"
 GO 3325 (PI: Wang, 45 h): "Mapping the Most Extreme Protoclusters in the Epoch of Reionization"
- 2021 **JWST Cycle 1**
 GO 2078 (PI: Wang, 61 h): "A Spectroscopic survey of biased halos In the Reionization Era (ASPIRE)"
 GO 1764 (PI: Fan, 66 h): "A Comprehensive JWST View of the Most Distant Quasars"
 GO 1554 (PI: Decarli, 8 h): "Nebular line diagnostics in a merger at cosmic dawn"
 GO 1967 (PI: Onoue, 50 h): "A Complete Census of Supermassive Black Holes and Host Galaxies at $z=6$ "

OBSERVATION EXPERIENCE

On-site/Remote observational experience at VATT (VattSpec, 50 nights), Magellan (FIRE, 2 nights), MMT (RedChannel, 10 nights), SOAR (Goodman HTS, 14 nights), LBT (LUCI/MODS, 16 nights), Keck (LRIS/KCWI, 8 nights)

SUPERVISION EXPERIENCE AND TRAINING

since 2024	Radha Anil Gharapurkar (PhD Student, University of Hamburg) primary supervisor
since 2024	Niklas Knop (Bachelor student, University of Hamburg) primary supervisor
2024	MINGZ Supervisor Workshop Part 1
since 2022	Ben Wang (PhD student, Leiden Observatory) co-supervision of PhD project
2021-2022	Daming Yang (Master student, Leiden Observatory) co-supervision of Master project, 1 publication
2019	Zhang-Liang Xie (summer student, MPIA) co-supervision of summer project (primary advisor: Eduardo Bañados)
2018 — 2019	Lukas Wenzl (visiting student, University of Arizona/ Bachelor student, MPIA) supervision of undergraduate research/Bachelor project, 1 publication

TEACHING

2024	Full lecture — Introduction to Astronomy and Astrophysics 1 Summer Term 2024, University of Hamburg, Germany
2016	1 Guest lecture — Black holes (Astronomy 203 - Stars) Steward Observatory, University of Arizona, USA
2016	1 Guest lecture — Fusion in stars (Astronomy 203 - Stars) Steward Observatory, University of Arizona, USA
2016	Teaching Assistant (Astronomy 203 - Stars) Steward Observatory, University of Arizona, USA
2015	Teaching Assistant (Astronomy 170B1 - The Physical Universe) Steward Observatory, University of Arizona, USA

SCIENTIFIC SOFTWARE DEVELOPMENT

2022	Lead developer of Sculptor - Interactive modeling of (electromagnetic) astronomical spectra (open-source software, github , ReadTheDocs , ASCL , 3 non-self citations)
2021	Co-developer of simqso - Module for generating simulated quasar spectra (open-source software, github , ReadTheDocs , ASCL)
2020	Co-developer of Pypelt - The Python Spectroscopic Data Reduction Pipeline (open-source software, github , ReadTheDocs , Zenodo)

SERVICE

Service to Profession

2024	(Co-)Lead organizer , EAS Special Session S1 From Galaxies to Quasars and back: Linking galaxy and SMBH evolution in the first two billion years
2021	SOC member , EAS Symposium S7 Quasars at the reionization epoch
2020	Lead-organizer , Splinter session at German Astronomical Society meeting Accreting supermassive black holes through cosmic time
since 2020	Co-lead classification working group, LSST AGN science collaboration
since 2017	Referee (MNRAS, A&A, ApJ, PASA, Euclid Consortium)

Departmental Service

2024 —	Work on PhD examination commissions, as a second thesis assessor (Bachelor)
2020 — 2021	Seminar organizer (Galaxy coffee, MPIA)
2020 — 2021	Postdoc representative (MPIA)
2019 — 2021	Time allocation committee (MPIA)
2019	Ph.D. application committee (IMPRS-HD)
2010 — 2011	Head of physics student representatives (Kiel)
2009 — 2011	Student representative on the board of the department of physics (Kiel)
2009 — 2011	Student representative on the examination board of the physics department (Kiel)

PUBLIC OUTREACH

2024	Public Talk (Live-Stream) - Astro & Co, Haus der Astronomie, Heidelberg <i>Auf den Spuren der Quasare</i>
2024	Public Talk - Sternstundenfestival, Universität Hamburg, Hamburg <i>Das James Webb Weltraumteleskop - Neue Bilder vom Blick zurück ins frühe Universum</i>
2023	Public Talk - "Wie alles began ...", Universität Hamburg, Hamburg <i>Das James Webb Weltraumteleskop</i>
2017	Public Talk - Astronomy on Tap Series, Borderlands Brewery, Tucson
2017	Invited Article - " Warum steht die Erde nie still ", German on-line magazine "Krautreporter"
2016	Invited talk - "Black Holes", Desert Sky Middle School, Tucson
2015	Invited talk - "Black Holes", Desert Sky Middle School, Tucson
2014	Invited talk - "Black Holes", Desert Sky Middle School, Tucson

PROFESSIONAL MEMBERSHIPS

Deutsche Physikalische Gesellschaft (German Physical Society)
Astronomische Gesellschaft (German Astronomical Society)
Euclid Consortium (primeval Universe working group)
LSST AGN Science Collaboration (Classification subgroup co-lead)