

CONTACT INFORMATION	MIT Kavli Institute for Astrophysics and Space Research	Phone: +1 (617) 253 7242
	Massachusetts Institute of Technology 77 Massachusetts Avenue, 37-626B Cambridge, MA 02139, USA	E-mail: eilers@mit.edu Web: www.mit.edu/~eilers
RESEARCH INTERESTS	• Supermassive Black Holes • High-Redshift Universe, Epoch of Cosmic Reionization, Galaxy Evolution • Cosmology, Large-Scale Structure of our Universe • Machine Learning and Data-Driven Models	
POSITIONS	Assistant Professor of Physics	since 2023
	Massachusetts Institute of Technology, Cambridge, USA	
	Pappalardo Fellow	2019 – 2023
	Massachusetts Institute of Technology, Cambridge, USA	
EDUCATION	NASA Hubble Fellow	2019 – 2022
	Massachusetts Institute of Technology, Cambridge, USA	
	PhD in Astrophysics (summa cum laude)	2015 – 2019
	Max-Planck Institute for Astronomy, Heidelberg, Germany <i>Thesis:</i> “Unravelling 13 Billion Years of Cosmic History with Spectroscopic Studies: From the Milky Way to the Epoch of Reionization” <i>Advisors:</i> Prof. Joseph F. Hennawi, Prof. Hans-Walter Rix	
	Master of Science in Physics	2012 – 2015
	University of Heidelberg, Germany <i>Thesis:</i> “Simultaneous Estimation of Quasar Continua and the Lyman-Alpha Forest Flux PDF using a Markov Chain Monte Carlo Algorithm” <i>Advisors:</i> Prof. Joseph F. Hennawi, Prof. Khee-Gan Lee	
	Bachelor of Science in Physics (Maximum Distinction)	2008 – 2011
	University of Göttingen, Germany <i>Thesis:</i> “Rate-Model of Coherence between Brain Areas during Selective Attention” <i>Advisors:</i> Dr. Demian Battaglia, Prof. Theo Geisel	
HONOURS & AWARDS	Otto Haxel Prize for Physics , Universities of Göttingen, Heidelberg, Karlsruhe	2023
	Otto Hahn Medal , Max Planck Society	2020
	IAU PhD Prize , International Astronomical Union	2020
	Doctoral Thesis Award , German Astronomical Society	2020
	KlarText Prize , Klaus Tschira Foundation, Prize for Science Communication	2020
	Wilhelm and Else Heraeus PhD Prize , University of Heidelberg	2020
	NASA Hubble Fellowship	2019–2022
	Pappalardo Fellowship , Massachusetts Institute of Technology	2019–2023
	PhD Graduation with <i>summa cum laude</i> , University of Heidelberg	2019

PhD Fellowship , German National Academic Foundation	2016–2018
Prize of the Arthur Wolfe Symposium	2018
Ernst Patzer Award , Patzer Foundation, Heidelberg	2017
Max Planck Fellow for the 66th Lindau Nobel Laureate Meeting	2016
Scholarship , German National Academic Foundation	2012–2015
Bachelor of Science with Distinction , University of Göttingen	2011

PUBLICATIONS ~ 110 refereed publications (13 as first author, 14 as second author, including 9 led by advised students) with a total of > 6000 citations and an h-index of 47. A list of all publications is available on [NASA/ADS](#).

MENTORING	Graduate Students:	
	• Kaylie Hausknecht (MIT), co-advisor with Prof. Bill Freeman	since 2024
	• Teodora Bulichi (MIT)	since 2023
	• Dominika Ďurovčíková (MIT)	since 2022
	• Xiaowei Ou (MIT), co-supervision (primary advisor: Prof. Lina Necib)	2022–2023
	• Sindhu Satyavolu (TIFR Mumbai), co-supervision (primary advisor: Prof. Girish Kulkarni)	2022–2023
	• Huanqing Chen (University of Chicago), co-supervision (primary advisor: Prof. Nick Gnedin)	2020–2022
	Undergraduate Students:	
	• Abby Tejera (Oberlin College), MIT Summer Research Program (MSRP)	2024
	• Sam Christian (MIT), UROP	2023–2024
	• Leah Bigwood (Durham University)	2021–2022
	• Karna Morey (MIT), UROP	2020–2021
	• Maria Selina Nitschai (MPIA), supervision of a Masters project	2019–2020
	Postdocs:	
	• Gene Leung (MIT)	since 2024
	• Yuzo Ishikawa (MIT)	since 2024
	• Minghao Yue (MIT)	2022–2025

ACADEMIC SERVICES	MIT Astronomy Colloquium , Organizer	since 2025
	Referee for <i>Nature</i> , <i>Nature Astronomy</i> , <i>ApJ</i> , <i>MNRAS</i> , and <i>JCAP</i>	since 2019
	MIT School of Science Postdoctoral Fellowship , Steering Committee Member	2024
	JWST Time Allocation Cycle 3 , Committee Member	2024
	First Stars VII Conference , SOC Member	2024
	“First Light” Conference , Chair of the SOC	2023
	MIT Kavli Institute Journal Club , Co-Organizer	2020–2023
	IAU Symposium: Dynamical Masses of Local Group Galaxies , SOC Member	2023
	Fraunhofer-Schwarzschild Postdoctoral Fellowship , Committee Member	2023
	MIT Magellan Time Allocation , Committee Member	2020–2021
	“Black holes and galaxies at the edge of the Universe” , SOC Member	2020
	FINESST , External Reviewer	2020
	“Future Investigators in NASA Earth and Space Science and Technology”	

Student Representative

2015–2019

of the International Max Planck Research School (IMPRS), Heidelberg

TEACHING

Lecturer, *Introduction to Electricity and Magnetism* (8.02), MIT Spring 2024, 2025
Guest Lecturer, Astrophysics graduate class on *Galaxies*, University of Colorado Nov 2020
Guest Lecturer, Physics undergraduate class on *Exploring Black Holes*, MIT Oct 2020

INVITED**COLLOQUIA &
SEMINARS**

Astronomy Colloquium, UCLA Apr 2025
ITC Colloquium, Institute for Theory and Computation, Harvard University Sept 2024
Astronomy Colloquium, Max Planck Institute for Astronomy, Heidelberg June 2024
Astronomy Colloquium, University of Maryland, Baltimore May 2024
Astronomy Colloquium, Columbia University, New York Apr 2024
Physics Colloquium, Argonne National Laboratory Mar 2024
ITC Luncheon, Harvard University Apr 2023
Astronomy Colloquium, University of Texas, Austin Feb 2023
Astrophysics Colloquium, MIT Feb 2023
Astronomy Colloquium, Ohio State University Dec 2022
Astronomy Colloquium, KIPAC, Stanford Oct 2022
Astronomy Seminar, Cosmic DAWN Center, Copenhagen May 2022
Astrophysics Colloquium, Australian National University, Canberra May 2022
Astronomy Colloquium, University of Bonn Apr 2022
Astronomy Colloquium, Ludwig Maximilian University, Munich Dec 2021
Astrophysics Colloquium, University of Chicago Dec 2021
Joint ESO/ALMA Colloquium, European Southern Observatory Dec 2021
Astronomy Colloquium, University of Michigan Nov 2021
BHI Colloquium, Black Hole Initiative, Harvard University Oct 2021
NASA Hubble Fellow Symposium Oct 2021
PhD Prize Colloquium, Annual Meeting of the German Astronomical Society Sept 2021
Astronomy Seminar, University of Cambridge May 2021
Astronomy Seminar, Kavli IPMU Tokyo May 2021
19th Annual Pappalardo Fellowship Symposium, MIT Apr 2021
EURECA Seminar, University of Arizona Mar 2021
Astronomy Colloquium, École Polytechnique Fédéral de Lausanne (EPFL) Mar 2021
KICP Seminar, Kavli Institute for Cosmological Physics, Chicago Feb 2021
Astrophysics Seminar, University of California San Diego Jan 2021
Astronomy Colloquium, Cornell University Oct 2020
Strong Gravity Seminar, Perimeter Institute Sept 2020
NASA Hubble Fellow Symposium Sept 2020
Faculty Lunch Talk, MIT July 2020
Aspen Center for Physics Summer Colloquium June 2020
High Energy Astrophysics Seminar Feb 2020
Max Planck Institute for Astrophysics, Garching
Heraeus Foundation Symposium, Heidelberg Jan 2020
NASA Hubble Fellow Symposium, Washington DC Oct 2019
Königstuhl Colloquium, Max Planck Institute for Astronomy July 2019
Brown Bag Lunch Series, MIT Oct 2018

	High Energy Astrophysics Seminar , University of Michigan	Oct 2018
	ITC Luncheon , Harvard-Smithsonian Center for Astrophysics	Oct 2018
	Astro Lunch , University of Washington, Seattle	May 2018
	Cosmology Seminar , Berkeley Center for Cosmological Physics, UC Berkeley	Feb 2018
	Cosmology Seminar , KIPAC Stanford	Feb 2018
	Patzer Colloquium , Max Planck Institute for Astronomy, Heidelberg	Nov 2017
CONFERENCE TALKS	Cosmic Dawn Revealed by JWST (<i>invited talk</i>), KITP, Santa Barbara	Aug 2024
	First Stars VII Conference , Flatiron Institute, New York	May 2024
	XXXIst General Assembly of the International Astronomical Union (<i>invited talk</i>), Division J Meeting, Busan, South Korea	Aug 2022
	Reionization and Cosmic Dawn , UC Berkeley, California	Mar 2022
	Quasars at the Reionization Epoch (<i>invited talk</i>), EAS Symposium	June 2021
	Machine Learning in Astronomy: Methods, Applications & Challenges , (<i>invited talk</i>), 238th Meeting of the American Astronomical Society	June 2021
	Frontiers in Science Symposium , (<i>invited talk</i>), Max Planck Society	Feb 2021
	Supermassive Black Holes Conference , Pucón, Chile	Dec 2020
	YAGN 2020: Young Astronomers on Galactic Nuclei	Oct 2020
	Accreting Supermassive Black Holes Through Cosmic Time	Sept 2020
	Annual Meeting of the German Astronomical Society	
	Summer All Zoom Epoch of Reionization Astronomy Conference	July 2020
	Black holes and galaxies at the edge of the Universe (<i>invited review</i>)	Mar 2020
	IGM 2018: Revealing Cosmology and Reionization History with the Intergalactic Medium , (<i>invited talk</i>), Kavli IPMU, Tokyo, Japan	Sept 2018
	Massive Black Holes in Evolving Galaxies: from Quasars to Quiescence , Paris, France	July 2018
	Arthur Wolfe Symposium on the Inter- and Circumgalactic Medium , California	Mar 2018
	The Circle of Life – Connecting the IGM, CGM, and ISM , South Africa	Aug 2017
	Unveiling the Physics Behind Extreme AGN Variability , St. Thomas, US Virgin Islands	July 2017
	High Redshift Quasars in the JWST Era , Carnegie Observatories	Feb 2017
	IGM 2016: From Wall to Web , Berlin, Germany	July 2016
	Signals from the Deep Past – Unveiling Early Cosmic Structures , Valletta, Malta	July 2016
	Illuminating the Dark Ages – Quasars and Galaxies in the Reionization Epoch , Heidelberg, Germany	June 2016
TELESCOPE TIME (AS PI)	JWST/NIRCam, MIRI Cycle 4 (110.9 hours)	2025
	<i>From Dawn till Noon: Chronicling the Cosmic History of Black Hole Growth</i> , ID: 6827	
	Magellan/LLAMAS (3 nights)	2024, 2025
	<i>ALPAQA: A Llamas Program of Ancient Quasars</i>	
	HST/ACS Cycle 32 (30 orbits)	2024
	<i>MASQUERADE: Mapping A Super-luminous Quasar's Extended Radiative Emission</i> , ID: 17725	

	JWST/NIRSpec MSA Cycle 3 (20.9 hours)	2024
	<i>MASQUERADE: Mapping a Super-luminous Quasar’s Extended Radiative Emission</i> , ID: 4713	
	VLT/MUSE (30 hours)	2024
	<i>MASQUERADE: Mapping A Super-luminous Quasar’s Extended Radiative Emission</i> , ID: 113.268B	
	JWST/NIRSpec MSA Cycle 2 (20.9 hours)	2023
	<i>Mapping Quasar Light Echoes with Lyman-alpha Forest Tomography during the Epoch of Reionization</i> , ID: 3117	
	Magellan/FIRE, LLAMAS (5 nights)	2023, 2024
	<i>Searching for Lyman-α Nebulae around High-Redshift Quasars</i>	
	JWST/NIRSpec IFU Cycle 2 (19.6 hours)	2023
	<i>BEES: Black hole Extended Emission Search</i> , ID: 3079	
	ALMA Cycle 9 (3.5 hours)	2022
	<i>The environment of quasars in the early universe: synergy between JWST and ALMA</i> , 2022.1.00347.S	
	Magellan/FIRE, IMACS (2 nights)	2022
	<i>Exploring high-redshift quasars revealed by Gaia DR3</i>	
	HST/ACS Cycle 29 (11 orbits)	2021
	<i>Quasars with small proximity zones: gravitationally lensed or exceptionally young?</i> , ID: 16756	
	ALMA Cycle 8 (7 hours)	2021
	<i>Triggering Mechanisms of Quasars and Black Hole Fueling in the Early Universe</i> , 2021.1.00349.S	
	VLT/MUSE (23 hours)	2020, 2021
	<i>Searching for Lyman-alpha Nebulae around Young Quasars</i> , 106.215A, 108.222J	
	Magellan/FIRE (19 nights)	2019–2021
	<i>The Formation and Growth of Supermassive Black Holes in the Early Universe</i>	
	XMM-Newton (73 ks)	2019
	<i>The Formation and Growth of Supermassive Black Holes in the Early Universe</i> , 086179	
	IRAM/NOEMA (20 hours)	2019
	<i>The Formation and Growth of Supermassive Black Holes in the Early Universe</i> , W19DU	
	IRAM/NOEMA (20 hours)	2017, 2018
	<i>Young Quasars in the Early Universe</i> , W17EQ, W18EF	
	IRAM/NOEMA (15 hours)	2018
	<i>Is the radio-brightest quasar at $z \sim 6$ one of the youngest ($< 10,000$ years)?</i> , W18EG	
	ALMA Cycle 5 (4.6 hours), <i>Young Quasars in the Early Universe</i> , 2017.1.00332.S	2017
	VLT/X-Shooter (2 nights), <i>Young Quasars in the Early Universe</i> , 101.B-02720	2017
SCIENCE	Cambridge Science Festival , Talk on Black Holes at the MIT Museum	2024
COMMUNICATION	Faszination Astronomie , Outreach Talk (youtube link ; in German)	2021
	KlarText Prize , Prize for Science Communication in Physics	2020
	Public Outreach Fellow	2015–2019
	Center for Astronomy Education and Outreach, Heidelberg	
	Articles contributed to “Sterne und Weltraum”	2017–2019