

CONTACT INFORMATION	Max Planck Institute for Astronomy Königstuhl 17 69117 Heidelberg, Germany	Phone: +49 6221 528488 E-mail: eilers@mpia.de Home: www.mpia.de/~eilers
CITIZENSHIP	USA, Germany	
RESEARCH INTERESTS	<ul style="list-style-type: none"> • quasar and galaxy evolution, quasar lifetimes, black hole formation • Epoch of Reionization, the intergalactic medium at high redshifts • structure and dynamics of the Milky Way • machine learning and data-driven models 	
POSITIONS	<p>Graduate Researcher 2015 – present Max-Planck Institute for Astronomy, Heidelberg, Germany</p> <p>Internship 2011 – 2012 European Space Research and Technology Centre (ESTEC)</p>	
EDUCATION	<p>Ph.D. in Astrophysics 2015 – 2019 (expected) Max-Planck Institute for Astronomy, Heidelberg, Germany</p> <ul style="list-style-type: none"> • Thesis title: <i>Unravelling 13 Billion Years of Cosmic History with Spectroscopic Studies: From the Milky Way to the Epoch of Reionization</i> • Advisors: Prof. Joseph F. Hennawi (University of California, Santa Barbara) and Prof. Hans-Walter Rix (Max Planck Institute for Astronomy) <p>M. Sc. in Physics (Grade: 1.1, equivalent GPA: 4.0) 2012 – 2015 University of Heidelberg, Germany</p> <ul style="list-style-type: none"> • Thesis title: <i>Simultaneous Estimation of Quasar Continua and the Lyman-Alpha Forest Flux PDF using a Markov Chain Monte Carlo Algorithm</i> • Advisors: Prof. Joseph F. Hennawi (Max Planck Institute for Astronomy and University of California, Santa Barbara) and Prof. Khee-Gan Lee (Kavli, IPMU) <p>B. Sc. in Physics, Maximum Distinction 2008 – 2011 University of Göttingen, Germany</p> <ul style="list-style-type: none"> • Thesis title: <i>Rate-Model of Coherence between Brain Areal during Selective Attention</i> • Advisors: Dr. Demian Battaglia and Prof. Theo Geisel (Max Planck Institute for Dynamics and Self-Organization) 	
PUBLICATIONS	<p>Publications as First & Second Author</p> <ol style="list-style-type: none"> 7. A.-C. Eilers, D. W. Hogg, H.-W. Rix, M. K. Ness (2019), <i>The Circular Velocity Curve of the Milky Way from 5 to 25 kpc</i>, <i>Astrophysical Journal</i>, 871, 120–128 6. D. W. Hogg, A.-C. Eilers, H.-W. Rix (2019), <i>Spectrophotometric parallaxes with linear models: Accurate distances for luminous red-giant stars</i>, submitted to <i>ApJ</i> (arXiv: 1810.09468) 5. A.-C. Eilers, J. F. Hennawi & F. B. Davies (2018b), <i>First Spectroscopic Study of a Young Quasar</i>, <i>Astrophysical Journal</i>, 867, 30–39 	

4. **A.-C. Eilers**, F. B. Davies & J. F. Hennawi (2018a), *The Opacity of the Intergalactic Medium Measured Along Quasar Sightlines at $z \sim 6$* , *Astrophysical Journal*, 864, 53–75
3. **A.-C. Eilers**, J. F. Hennawi & K.-G. Lee (2017b), *Joint Bayesian Estimation of Quasar Continua and the Ly α Forest Flux Probability Distribution Function*, *Astrophysical Journal*, 844, 136–160
2. **A.-C. Eilers**, F. B. Davies, J. F. Hennawi, J. X. Prochaska, Z. Lukic & C. Mazzucchelli (2017a), *Implications of $z \sim 6$ Quasar Proximity Zones for the Epoch of Reionization and Quasar Lifetimes*, *Astrophysical Journal*, 840, 24–48
1. J. H. J. de Bruijne & **A.-C. Eilers** (2012), *Radial velocities for the Hipparcos-Gaia Hundred-Thousand-Proper-Motion project*, *Astronomy & Astrophysics*, 546, 61–75

Publications as Co-Author:

5. K. Kakiichi, R. S. Ellis, N. Laporte, A. Zitrin, **A.-C. Eilers**, E. Ryan-Weber, R. A. Meyer, B. Robertson, D. Stark & S. Bosman (2018), *The Role of Galaxies and AGN in Reionising the IGM - I: Keck Spectroscopy of $5 < z < 7$ Galaxies in the QSO Field J1148+5251*, *Monthly Notices of the Royal Astronomical Society*, 479, 43–63
4. F. B. Davies, J. F. Hennawi, **A.-C. Eilers** & Z. Lukic (2018), *A New Method to Measure the Post-Reionization Ionizing Background from the Joint Distribution of Lyman- α and Lyman- β Forest Transmission*, *Astrophysical Journal*, 855, 106–120
3. K. El-Badry, H.-W. Rix, Y.-S. Ting, D. R. Weisz, M. Bergemann, P. Cargile, C. Conroy & **A.-C. Eilers** (2018), *Signatures of Unresolved Binaries in Stellar Spectra: Implications for Spectral Fitting*, *Monthly Notices of the Royal Astronomical Society*, 473, 5043–5049
2. C. Mazzucchelli, E. Bañados, B. P. Venemans, R. Decarli, E. P. Farina, F. Walter, **A.-C. Eilers**, H.-W. Rix, R. Simcoe, D. Stern, X. Fan, E. Schlafly, G. De Rosa, J. F. Hennawi, K. C. Chambers, J. Greiner, W. Burgett, P. W. Draper, N. Kaiser, R.-P. Kudritzki, E. Magnier, N. Metcalfe, C. Waters & R. J. Wainscoat (2017), *Physical Properties of 15 Quasars at $z \geq 6.5$* , *Astrophysical Journal*, 849, 91–117
1. K.-G. Lee, J. F. Hennawi, C. Stark, J. X. Prochaska, M. White, D. J. Schlegel, **A.-C. Eilers**, A. Arinyo-i-Prats, N. Suzuki, R. A. Croft, K. I. Caputi, P. Cassata, O. Ilbert, B. Garilli, A. M. Koekemoer, V. Le Brun, O. Le Fèvre, D. Maccagni, P. Nugent, Y. T. Taniguchi, A. M. Lidia, L. Tresse, G. Zamorani & E. Zucca (2014), *Lyman-alpha Forest Tomography from Background Galaxies: The First Megaparsec-Resolution Large-Scale Structure Map at $z > 2$* , *Astrophysical Journal Letters*, 795, 12–19

Non-Refereed Publications:

2. **A.-C. Eilers** (2018), *Wie schnell wachsen Schwarze Löcher?*, *Sterne und Weltraum*, 06/2018
1. **A.-C. Eilers** (2017), *Eine neue Karte der Milchstraße*, *Sterne und Weltraum*, 09/2017

HONOURS & AWARDS	NASA Hubble Fellowship (NHFP)	2019
	Pappalardo Fellowship , Massachusetts Institute of Technology	2019
	CfA Fellowship (declined), Harvard-Smithsonian Center for Astrophysics	2019
	ESO Garching Fellowship (declined), European Southern Observatory	2019
	Fellow of the International Max Planck Reserach School , IMPRS Heidelberg	2015 – 2019
	Ph.D. Fellowship of the German National Academic Foundation (Studienstiftung des deutschen Volkes)	2016 – 2018
	Prize of the Arthur Wolfe Symposium awarded for the best presentation by a junior researcher.	2018
	Ernst Patzer Award , Patzer Foundation awarded for the best refereed publication by a young scientist.	2017
	Max Planck Fellow for the 66th Lindau Nobel Laureate Meeting	2016
	Scholarship of the German National Academic Foundation	2012 – 2015
	Bachelor of Science with Distinction , University of Göttingen	2011
INVITED TALKS & SEMINARS	Astrophysics Lunch Series , Massachusetts Institute of Technology	Oct 2018
	High Energy Astrophysics Seminar , University of Michigan	Oct 2018
	ITC Luncheon , Harvard-Smithsonian Center for Astrophysics	Oct 2018
	IGM 2018: Revealing Cosmology and Reionization History with the Intergalactic Medium , Kavli IPMU, Tokyo	Sept 2018
	Astro Lunch , University of Washington, Seattle	May 2018
	Arthur Wolfe Symposium on the Inter- and Circumgalactic Medium , Esalen	Mar 2018
	Astro Lunch , UC Santa Barbara	Mar 2018
	Cosmology Seminar Berkeley Center for Cosmological Physics, UC Berkeley	Feb 2018
	Cosmology Seminar Kavli Institute for Particle Physics and Cosmology, Stanford	Feb 2018
	Stars Group Meeting , Center for Computational Astrophysics, Flatiron Institute, New York	Dec 2017
	High Redshift Quasars in the JWST Era , Carnegie Observatories, Pasadena	Feb 2016
	IMPS Special Seminar , UC Santa Cruz	Jan 2016
	CONTRIBUTED CONFERENCE TALKS	Massive Black Holes in Evolving Galaxies: from Quasars to Quiescence , Paris
Gaia Sprint , New York		June 2018
Challenges in Galaxy Evolution – From Black Holes to Cosmic Web , Florence (short talk)		Sept 2017
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
Gaia Sprint , Heidelberg	June 2017
IGM 2016: From Wall to Web , Berlin	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	June 2016
Workshop on the Inter- and Circumgalactic Medium , Esalen	Feb 2016

SUCCESSFUL
TELESCOPE
PROPOSALS

As **Principal Investigator**:

IRAM/NOEMA (PI: Eilers) (20 hours) <i>Young Quasars in the Early Universe</i> , W17EQ, W18EF, Grade A	2017 – 2018
IRAM/NOEMA (PIs: Eilers & Bañados) (15 hours) <i>Is the radio-brightest quasar at $z \sim 6$ one of the youngest ($< 10,000$ years)?</i> , W18EG, Grade A	2018
ALMA (PI: Eilers) (4.6 hours) <i>Young Quasars in the Early Universe</i> , 2017.1.00332.S, Grade A	2017
VLT/X-Shooter (PI: Eilers) (2 nights) <i>Young Quasars in the Early Universe</i> , 101.B-02720	2017

As **Co-Investigator**:

VLT/X-Shooter LP (PI: D’Odorico) (248 hours) <i>XQR-30: the ultimate XSHOOTER legacy survey of quasars at $z \sim 5.8 - 6.6$</i> , 1103.A-0817	2018
VLT/X-Shooter (PI: Wang) (29.5 hours) <i>Exploring the Cosmic Reionization and Black Hole Growth with Three New Luminous Quasars at $z \sim 7$</i>	2018
ALMA (PI: Wang) (6.7 hours) <i>A Comprehensive Study of Quasar Host Galaxy and Cosmic Reionization with a Statistical Complete Quasar Sample at $z > 6.5$</i> , 2018.1.01188.S, Grade A.	2018
Keck/NIRES (PI: Hennawi) (2 nights) <i>Searching for Quasars Deep Into the Epoch of Reionization</i> , 2018B_U124	2018
Keck/HIRES (PI: Hennawi) (2 nights) <i>Probing Reionization with An Ultraluminous Quasar at $z = 6.5$</i> , 2018B_ U086	2018
Keck/NIRES (PI: Barth) (4 nights) <i>A NIRES Survey of the Most Distant Quasars</i> , 2018A_U266, 2018B_U099	2017 – 2018
Keck/HIRES (PI: Hennawi) (7 nights) <i>Thermal Memory of Cosmic Reionization</i> , 2017A_U074, 2017B_U083, 2018A_U189	2017 – 2018
Keck/DEIMOS (PI: Hennawi) (7 nights) <i>Constraints on Reionization from New High Redshift Quasars</i> , 2017A_U078, 2017B_U090, 2018A_U259	2017 – 2018
Keck/DEIMOS (PI: Kakiichi) (2 nights) <i>The Ionizing Capability of Luminous Galaxies at the End of Cosmic Reionization</i> , S17B0075N	2017

	VLT/X-Shooter (PI: Farina) (80 hours) <i>The Properties of the First QSOs: new Insights from X-SHOOTER and ALMA</i> , 097.B-1070, 098.B-0537	2015 – 2016
OBSERVING EXPERIENCE	VLT/X-Shooter (2 nights)	2018
	Keck/DEIMOS (7 nights)	2017 – 2018
	Keck/HIRES (4 nights)	2017
	Keck/ESI (2 nights)	2016
	Keck/LRIS (3 nights)	2014
OUTREACH	Public Outreach Fellow at the Center for Astronomy Education and Outreach, Heidelberg.	2015 – present
	Conrtibution of articles for the German science magazine “Sterne und Weltraum”	2017 – present
	Volunteer at the Open Day of the Max Planck Institute for Astronomy	2015
PROFESSIONAL SERVICES	Student Representative of the International Max Planck Research School (IMPRS), Heidelberg	2015 – present
	Organization of the yearly retreat for IMPRS students	2016 – 2017
	Local Organizing Committee , Conference “From Wall to Web”	2016
	Local Organizing Committee , Conference “Dark Ages”	2016
	Local Organizing Committee , Conference “Intergalactic Matters”	2014
TEACHING EXPERIENCE	Introduction to Astronomy (undergraduate course) Teaching Assistant, University of Heidelberg	2015 – 2016
	Mathematical Principles in Physics (undergraduate course) Teaching Assistant, University of Heidelberg	2013
	Advanced Physics Lab (undergraduate course) Teaching Assistant, University of Göttingen	2011