

Anna T. P. SCHAUER

OCTOBER 2020

PERSONAL DATA

INSTITUTE: UT Austin, Department of Astronomy
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WORK EXPERIENCE

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| <i>Current</i> OCTOBER 2018 | NHFP Hubble Fellow University of Texas at Austin , Austin, United States of America Scientific advisor: Volker BROMM |
| SEPTEMBER 2018 DECEMBER 2017 | Transitional PostDoc in ASTRONOMY Zentrum für Astronomie, Institute of Theoretical Astrophysics , Heidelberg, Germany |
| APRIL 2014 JANUARY 2014 | Research Experience Institute for Astronomy , Honolulu, Hawai'i Working with Roberto MÉNDEZ on planetary nebulae in NGC 4244 |
| DECEMBER 2012 SEPTEMBER 2012 | Working Student Max-Planck-Institute for Extraterrestrial Physics , Garching, Germany Working with Stefan GILLESSEN on the Instrumentation of GRAVITY in the group of Reinhard GENZEL |

EDUCATION

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| OCTOBER 2017 | PhD student in ASTRONOMY Final Grade: magna cum laude |
| OCTOBER 2014 | Zentrum für Astronomie, Institute of Theoretical Astrophysics, Heidelberg, Germany <i>Delaying the formation of the first stars: The impact of streaming velocities and Lyman-Werner radiation in cosmological hydrodynamical simulations</i> Advisors: Ralf KLESSEN and Simon GLOVER |
| AUGUST 2014 | Master of Science in PHYSICS Final Grade: 1.2 |
| MAY 2012 | Ludwig-Maximilians-Universität, Munich, Germany <i>The Mystery of the σ-bump – a new Signature for Major Mergers?</i> Advisor: Andreas BURKERT |
| AUGUST 2014 | Master of Science in ASTROPHYSICS Final Grade: 1.2 |
| MAY 2012 | Ludwig-Maximilians-Universität, Munich, Germany <i>Tracing the Kinematics of Galaxies - Planetary Nebulae in NGC 4244</i> Advisor: Andreas BURKERT |
| FEBRUARY 2011 | Exchange Student in PHYSICS |
| SEPTEMBER 2010 | École Polytechnique Fédérale de Lausanne, Lausanne, Suisse |
| APRIL 2012 | Bachelor of Science in PHYSICS Final Grade: 1.8 |
| OCTOBER 2008 | Ludwig-Maximilians-Universität, Munich, Germany <i>Cosmological Perturbations</i> Advisor: Viatcheslav MUKHANOV |
| JUNE 2008 | Abitur Final Grade: 1.1 |
| SEPTEMBER 2000 | Karls gymnasium München-Pasing (high school), Munich, Germany skipping grade 11 |

SELECTED TALKS

- JULY 2020 Conference “Summer All Zoom Epoch of Reionization Astronomy Conference”
(remotely via zoom)
Contributed Talk: “**The influence of streaming velocities and Lyman-Werner radiation on the formation of Pop III stars**”
- APRIL 2020 Colloquium at Texas A&M
College Station, TX (remotely via zoom)
Colloquium “**The formation of the first stars**”
- MARCH 2020 Conference “First Stars VI”
Concepcion, Chile
Contributed Talk: “**The influence of streaming velocities and Lyman-Werner radiation on the formation of Pop. III stars**”
- FEBRUARY 2020 Outreach talk for Board of Visitors
Austin, TX
Outreach talk “**The formation of the first stars**”
- SEPTEMBER 2019 Colloquium at Cardiff University, UK
Title: “**Minihaloes - the formation sites of the first stars**”
- SEPTEMBER 2019 Conference “Extremely Big Eyes on the Early Universe”
Rome, Italy
Contributed Talk: “**Constraining first star formation with 21 cm Cosmology**”
- AUGUST 2019 Seminar for NSF/DoD REU students
UT Austin, Texas
Talk: “**Studying and pursuing a PhD in Europe**”
- DECEMBER 2018 Conference “Stellar Archaeology as a Time Machine to the First Stars”
Tokyo, Japan
Invited Opening Talk: “**The formation of the first stars**”
- JULY 2018 APEC Seminar at IPMU Tokyo, Japan
Invited Seminars in Kyoto and Kobe, Japan
Title: “**First star formation with streaming velocities and Lyman-Werner radiation**”
- FEBRUARY 2018 ITC Seminar at Harvard, Boston
Talk: “**The influence of streaming velocities on the formation of the first stars and black holes**”

- FEBRUARY 2018 Conference “Cosmological Signals from Cosmic Dawn to the Present”
Aspen, Colorado
Contributed talk: **“The influence of streaming velocities on the formation of the first stars ”**
- OCTOBER 2017 Theoretical Astrophysics Seminar at the University of Zurich, Switzerland
Title: **“The influence of streaming velocities on the formation of the first stars and black holes”**
- JUNE 2017 Conference “Francesco’s Legacy: Star Formation in Space and Time”
Florence, Italy
Contributed talk: **“Delaying the formation of the first stars”**
- APRIL 2017 Group retreat of Andi Burkert: “CAST Outing”
Allgäu, Germany
Invited with a talk: **“The first stars & news from the σ -bump”**
- FEBRUARY 2017 Conference “The Physics of the ISM: 6 years of ISM-SPP 1573: what have we learned?”
Cologne, Germany
Contributed talk: **“Lyman-Werner escape fractions from the first galaxies”**
- AUGUST 2016 “First Stars V”
Heidelberg, Germany
Contributed talk: **“Lyman-Werner UV escape fractions from primordial haloes and galaxies”**
- MARCH 2016 Conference “The Reionization Epoch: New Insights and Future Prospects”
Aspen, Colorado
Contributed talk: **“Lyman-Werner Escape Fractions from Primordial Haloes and Early Galaxies”**
- DECEMBER 2015 Conference “Cosmology and First Light”
Paris, France
Contributed talk: **“Lyman-Werner UV Escape Fractions from Primordial Haloes”**
- JUNE 2015 Conference “First stars, galaxies, and black holes”
Groningen, The Netherlands
Contributed Talk: **“Lyman-Werner Escape Fractions from Primordial Haloes”**
- Current*
SUMMER 2013 Various talks in seminars and group meetings
Austin, Heidelberg, Munich, Garching, Japan, Harvard

EXTERNAL FUNDING AND HONOURS

- FALL 2018 **NHFP Hubble Fellowship** awarded for three years
Project *Minihaloes - Formation Sites of the First Stars*
taken to the University of Texas at Austin
- SPRING 2019 **AURA Future Leader**
Invited to the annual AURA meeting as a junior “future leader”
Tucson, Arizona
- SPRING 2018 **CITA Fellowship** awarded for three years
declined
- SPRING 2018 **Government of Ireland Postdoctoral Fellowship** awarded for two
years
declined
- AUGUST 2017 **18.8 million CPUh** awarded on **SuperMUC**
Project *Delaying first star formation*
- MARCH 2014 Scholarship of the **Max Weber-Program of the State of Bavaria**
OKTOBER 2008 Bavarian Elite Aid Act: scholarship for highly-gifted students
- SPRING 2014 **PROSA-LMU (DAAD)-scholarship**
Project on *planetary nebulae* at the **Institute for Astronomy, Hawai’i**
- FALL 2010 **ERASMUS-scholarship** for studying abroad in **Lausanne**

CO-SUPERVISION OF STUDENTS

- Current* *NSF/DoD REU student* Lauren HIGGINS at UT Austin
- SUMMER 2019 **Summer project** on the cosmic near infrared background in the context of
21 cm radiation
Co-supervision with Volker BROMM
- SUMMER 2019 *Master student* Maik DRUSCHKE
- FALL 2016 **Master thesis** on the influence of streaming velocities on the spin parameter
in minihaloes
Bachelor thesis on statistical properties of minihaloes
Co-supervision with Ralf KLESSEN and Simon GLOVER
- FALL 2018 *Bachelor student* Kaj KRAMER
- SPRING 2018 **Bachelor thesis** on merger trees from simulations at high redshifts
Co-supervision with Mattis MAGG, Ralf KLESSEN and Simon GLOVER
- SUMMER 2018 *Master student* Mattis MAGG
- FALL 2017 **Master thesis** on metal mixing from Population III supernovae
Co-supervision with Ralf KLESSEN and Simon GLOVER

TEACHING, COMMUNITY SERVICE AND RELATED ACTIVITIES

- Current* Referee for **MNRAS** and **JCAP**
- Current* **Organization** of Postdoc Mentoring Group, Austin, TX
Bi-weekly meeting focused on improving our mentoring skills as post-docs, with emphasis on mentoring students of a minority group
- Current* **Member** of UT Austin Astronomy Outreach Group, Austin, TX
Outreach program to Austin elementary schools and high schools
- OCTOBER 2020 **Chair and SOC** of Conference “The first stars”
Organization of online-only conference on first stars in simulations
- MAY 2020 **Reviewer** for HST proposals
HST cycle 28
- FALL 2019 **SOC and LOC** of Bashfest 2019, Austin, TX
Organization of conference on New Horizons in Astronomy
- SUMMER 2019 **Co-chair and SOC** at EWASS 2019, Lyon, France
Organization of 2-day symposium S3 “The first billion years of the Universe”
- SPRING 2019 Referee for **NSPIRES**
- SPRING 2019 **Guest lecturer** at the Computational Astrophysics School, Austin, TX
Lecturing about numerical simulations and my research on first stars to undergraduates
- SPRING 2019 **Guest lecturer** for Astronomy 307, Austin, TX
Substituting for Caitlin CASEY
- SUMMER 2018 Organization of the **High-z journal club**
- SPRING 2018 Weekly ArXiv session on recent publications on the high-redshift Universe, together with Simon GLOVER
- SUMMER 2015 **Teaching assistant**
Universität Heidelberg, Germany
Astronomie und Astrophysik II lectured by Matthias BARTELMANN
- FALL 2017 **Student representative** of the 10th IMPRS generation
- FALL 2014 Organization of two IMPRS-retreats, member of the IMPRS board
- FALL 2014 **Organization of the student meeting** at the Institute of Theoretical Astrophysics, Heidelberg
Talks from students for students about coding, presentations and posters
- SUMMER 2010 **Organization of the Optics-pizza seminar** at the LMU Munich
One day seminar for students, introducing them to possible bachelor thesis projects in optics
- SPRING 2010 **Organization of “Listen to your Prof!”** at the LMU Munich
Two day talk series for bachelor and master students in math, physics and computer science, connecting them with professors from various research groups
- AUGUST 2011 **Teaching assistant for Lab Courses** in Experimental Physics
- OCTOBER 2009 Ludwig-Maximilians-Universität, Munich, Germany
Each year for 3-4 months

PUBLICATIONS: JOURNALS

12 refereed publications, 8 of them first author, with 176 citations in total, h-index of 6 students for whom I was the main supervisor are printed in boldface

- Schauer, A. T. P.**, Glover, S. C. O., Klessen, R. S. & Clark, P.:
“The influence of streaming velocities and Lyman-Werner radiation on the formation of the first stars ”
Submitted to MNRAS, ArXiv: 2008.05663
- Schauer, A. T. P.**, Drory, N. & Bromm, V.:
“The Ultimately Large Telescope – what kind of facility do we need to detect Population III stars? ”
Accepted in ApJ, ArXiv: 2007.02946
- Druschke, M., Schauer, A. T. P.**, Glover, S. C. O. & Klessen, R. S.:
“Shape and Spin of Minihaloes II: The Effect of Streaming Velocities”
2020, MNRAS, 498, 4839
- Liu, B., **Schauer, A. T. P.** & Bromm, V.:
“Lessons on early structure formation from a mature galaxy cluster observed at cosmic noon”
2020, MNRAS, 495, 1700
- Schauer, A. T. P.**, Liu, B. & Bromm, V.:
“Constraining First Star Formation with 21cm-Cosmology”
2019, APJ LETTERS, 877, 5
- Liu, B., **Schauer, A. T. P.** & Bromm, V.:
“Constraining the non-gravitational scattering of baryons and dark matter with early cosmic structure formation”
2019, MNRAS, 487, 4711
- Schauer, A. T. P.**, Glover, S. C. O., Klessen, R. S. & Ceverino, D.:
“The Influence of Streaming Velocities on the Formation of the First Stars”
2019, MNRAS, 484, 3510
- Druschke, M., Schauer, A. T. P.**, Glover, S. C. O. & Klessen, R. S.:
“Shape and Spin of Minihaloes: From Large Scales to the Centres”
2018, MNRAS, 481, 3266
- Schauer, A. T. P.**, Regan, J. and Glover, S. C. O. & Klessen, R. S.:
“The formation of direct collapse black holes under the influence of streaming velocities”
2017, MNRAS, 471, 4878
- Schauer, A. T. P.**, Agarwal, B., Glover, S. C. O., Klessen, R. S., Latif, M. A., Mas-Ribas, L., Rydberg, C.-E., Whalen, D. J. & Zackrisson, E.:
“Lyman-Werner escape fractions from the first galaxies”
2017, MNRAS, 467, 2288
- Schauer, A. T. P.**, Whalen, D. J., Glover, S. C. O. & Klessen, R. S.:
“Lyman-Werner UV escape fractions from primordial haloes”
2015, MNRAS, 454, 244
- Schauer, A. T. P.**, Remus, R.-S., Burkert, A. & Johansson, P. H.:
“The Mystery of the σ -Bump: A new Signature for Major Mergers in Elliptical Galaxies?”
2014, APJ LETTERS, 783, L32

PUBLICATIONS: PROCEEDINGS

Higgins, L., Schauer, A. T. P., Bromm, V.:
“21cm Cosmology and the Cosmic Near Infrared Background”
2019, ASP CONFERENCE PROCEEDING SERIES

Hutter, A., Dayal, P., ..., **Schauer, A. T. P.,** ...
“A proposal to exploit galaxy-21cm synergies to shed light on the Epoch of Reionization ”
ASTRO2020, DECADAL SURVEY ON ASTRONOMY AND ASTROPHYSICS

Schauer, A. T. P., Glover, S. C. O. & Klessen, R. S.:
“Delaying the formation of the first stars”
2017, MEMORIE DELLA SAIT

Schauer, A. T. P., Schulze, F., Remus, R.-S. & Burkert, A.:
“The σ -bump in elliptical galaxies - a signature of major mergers?”
2017, IAUS, 321,122S