

CURRICULUM VITAE

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Employment

Aug. 2019 –	Royal Society URF (Professor), JBCA, The University of Manchester
Aug. 2017 – July 2019	Royal Society URF (Reader), JBCA, The University of Manchester
Jan. 2016 – July 2017	Royal Society URF (Lecturer), JBCA, The University of Manchester
Jan. 2015 – Dec. 2015	Royal Society URF at the Institute of Astronomy, Cambridge University
Oct. 2012 – Dec. 2014	Associate Research Scientist, Johns Hopkins University, Baltimore, USA
Sept. 2011 – Sept. 2012	Senior Research Associate, Canadian Institute for Theoretical Astrophysics
Oct. 2008 – Aug. 2011	Postdoctoral Fellow at the Canadian Institute for Theoretical Astrophysics
Sept. 2005 – Sept. 2008	Postdoctoral Fellow at the Max-Planck Institut für Astrophysik, Germany
March 2005 – Aug. 2005	Research Fellowship at the Max-Planck Institut für Astrophysik, Germany

Education

Oct. 2001 – Oct. 2004	Student of the International Max-Planck Research School in Astrophysics (IMPRS) [www.imprs-astro.mpg.de]
Oct. 1998 – July 2001	Undergrad in Physics at the Georg-August University of Göttingen
Oct. 1996 – Sept. 1998	Undergrad in Physics at the Technical University of Hannover
June 1995 – July 1996	Alternative civilian service (substitute for military service)
Aug. 1992 – May 1995	Ratsgymnasium Stadthagen (German high school)

Qualifications

July 2005	Ph. D. in Astrophysics at the Ludwig-Maximilians-Universität in Munich Ph. D. institution: Max-Planck Institut für Astrophysik Thesis title: <i>Spectral Distortions of the Cosmic Microwave Background</i> Supervisor: Prof. Rashid Sunyaev Thesis submission: <i>March 2005</i>
July 2001	Diploma in Physics (similar to M.Sc.) Institution: Universitäts-Sternwarte Göttingen Thesis title: <i>Contributions of the internal motion of the intracluster medium to the Sunyaev-Zeldovich Effect</i> (in German) Supervisor: Prof. Karl Mannheim Thesis submission: <i>May 2001</i>
Sept. 1998	Vordiplom in Physics (similar to Bachelor) Institution: Technical University of Hannover

Research Interests

- *Cosmology*: spectral distortions of the CMB; cosmological recombination; early-universe physics, cosmological parameter estimation; Sunyaev-Zeldovich effect; 21 cm cosmology
- *Atomic physics*: two-photon and Raman processes; hydrogen and helium recombination spectra; collisional processes in astrophysical plasmas
- *Radiative transfer*: thermalization physics; Lyman- α escape in the early Universe; line feedback; line scattering and partial frequency redistribution; electron scattering
- *High energy physics*: energy transfer to the intergalactic medium by annihilating dark matter and decaying particles; variation of fundamental constants; accretion onto compact objects;

Research Grants

Current:

- Co-I of STFC consolidated grant proposal: \approx 300,000 GBP (April 2020–March 2023)
- Renewal of Royal Society URF (URF/R/191023): 557,252 GBP (Jan. 2020–Dec. 2022)
- Royal Society Research Grant (RGF/EA/180053): 91,992 GBP (Sept. 2018–March 2022)
- ERC consolidator grant 2016: \approx 2,000,000 € (Sept. 2017–Aug. 2022)

Past:

- Royal Society Research Grant (RG140523): 76,597 GBP (Sept. 2016–Aug. 2019)
- Royal Society University Research Fellowship (UF130435): 406,979 GBP (Jan. 2015–Dec. 2019)
- Co-I on CERN TH-Institute workshop grant 2018: \approx 30,000 GBP (March 2018 for CERN workshop)
- STFC Rutherford Fellowship 2014, value \approx 400,000 GBP, *declined* in favor of the RSURF

Awards

- Recipient of the *Beatrice D. Tremaine* award 2010
- *Berliner-Ungewitter Diploma-Prize* of the Faculty of Physics in Göttingen, Summer 2001
- *Book Stipend* of the AVENTIS (former HOECHST AG) Studienstiftung, 1998-1999

Major Collaborations and leadership roles

- Coordinator of ESA Voyage 2050 *Spectral Distortion White Paper* in 2019
- Coordinator of *Spectral Distortion White Paper* for Decadal Review in 2019
- Collaborator of *Simons Observatory*, scientific director Brian Keating (USA)
- Collaborator of *BISOU* lead by Bruno Maffei (Orsay, France)
- Collaborator of *PRISTINE* lead by Nabila Aghanim and Bruno Maffei (Orsay, France)
- Co-investigator of *PIXIE* lead by Alan Kogut (NASA Goddard)
- Collaborator of the *Inflation Probe Mission Concept Study (PICO)* lead by Shaul Hanany (Minnesota)
- Member of *APSErA* lead by Ravi Subramanian (RRI India)
- Member of *CORE* and main author of several *CORE* Exploring Cosmic Origins papers
- Former *leader* of the CMB spectral distortion working groups in the *PRISM* and *COre+* collaboration
- Former *Planck Associate* (HFI instrument) responsible for studies of the cosmological ionization history

Scientific Societies

- Member of the Deutsche Physikalische Gesellschaft (DPG), 2000 –
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Lectures

- Invited Lecturer, School on "Cosmology - The Next Decade" (4 hours), Bangalore, India, Jan 2019
- Invited Lecturer at the 3rd School on Cosmology Tools (6 hours), Aachen, Germany, March 2018
- Invited Lecturer, Cosmology School "CMB from A to Z" (3 hours), Cargese, France, Nov 13 - 17, 2017
- Invited Lecturer at the ICCUB School in Cosmology (4 hours), Barcelona, Spain, October 23 - 26, 2017
- Invited Lecturer, CANATATA Summer School (8 hours), Corfu, Greece, Sept 4 - 15, 2017
- Invited Lecturer at the School of Physics "Enrico Fermi" (3 hours), Varenna, Italy, July 2 - 12, 2017
- Invited Lecturer at the 2nd IFT School on Cosmology Tools (4 hours), Madrid, Spain, March 2017
- Invited Lecturer at the Ecole de Physique (3 hours), Les Houches, Switzerland, April 2016
- Invited Lecturer at the ISAPP School 2015 (1.5 hours), Paris, France, June 2015
- CUSO Lecturer 2014 (14 hours), Geneva, Switzerland, Oct 16 - Nov 6, 2014
- Invited Lecturer at the Gif School 2014 (1.5 hours), Paris, France, Sept 8 - 12, 2014
- Invited Lecturer at the 1st IFT School on Cosmology Tools (3 hours), Madrid, Spain, Nov 12 - 15, 2013
- Invited Lecturer at KEK Particle Phenomenology (3 hours), Tsukuba, Japan, Sept 30 - Oct 3, 2013
- Invited Lecturer at the 100th Les Houches school on Post-Planck Cosmology (3 hours), July-Aug, 2013

Extended academic visits

- Institute de Henry Poincare (IHP), Paris, France, 1 month, Sept – Oct 2018
- Aspen Center for Physics, Aspen, USA, 2 weeks, June 2017
- Weizmann Institute, Tel Aviv, Israel, 2 weeks, May 2016
- Munich Institute for Astro- and Particle Physics, Munich, Germany, 2 weeks, Feb 2015
- University of Geneva, Geneva, Switzerland, 3 weeks, Oct – Nov 2014

Supervision of graduate students and postdoctoral fellows

- Ph.D supervisor, Thomas Kite (The University of Manchester), 09/2019 –
 - Ph.D supervisor, Elizabeth Lee (The University of Manchester), 09/2018 –
 - M.Phys advisor, Charis Pooni (The University of Manchester), 09/2019 – 05/2020
 - Ph.D supervisor, Luke Hart (The University of Manchester), 09/2016 – 03/2020
 - Ph.D co-supervisor, Liang Dai (Johns Hopkins University) with Prof. Kamionikowski, 12/2012 – 12/2014
 - Ph.D co-supervisor, Marzieh Farhang (University of Toronto) with Prof. Bond, 06/2009 – 04/2013
 - Supervisor, Jeffrey Fung (University of Toronto) during his first year Ph.D project, 09/2009 – 05/2010
 - Supervision, Jeffrey Fung (University of Toronto) as CITA summer student, 05/2009 – 09/2009
 - Initiator of projects and collaboration with many Post-docs as a senior advisor, 2010–
 - PDRA supervisor of Dr. Abir Sarkar, Dr. Boris Bolliet, Dr. Mathieu Remazeilles, Dr. Aditya Rotti, Dr. Andrea Ravenni, Dr. Francesco Pace (The University of Manchester)
 - Supervision of students during physics labs at the University of Göttingen and Hannover, 1998-2001
 - Supervision of students during physics labs at the University of Göttingen, 1999-2001
 - Supervision of students during physics labs at the University of Hannover, 1998
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Academic Services, leadership and management

- *Panel activities* (i.e., proposal evaluation and ranking) for the NASA Astrophysics Theory Program (NASA ATP), the European Research Council (ERC), Royal Society (RS) and Science and Technology Facilities Council (STFC)
- *Meeting organization*
 - Local and Scientific organizer, PASCOS meeting, Manchester, UK, July 1–5, 2019
 - Scientific organizer, CASTLE Workshop, Tagliolo Monferrato, Italy, September 9–12, 2018
 - Scientific organizer, Parallel Session at Marcel Grossmann Meeting, Rome, Italy, July 1–7, 2018
 - Scientific organizer, CERN TH institute, Geneva, Switzerland, March 12–16, 2018
 - Scientific organizer, ‘Global 21cm and CMB Distortions’, Bangalore, India, July 11–16, 2016
 - Scientific organizer, ‘Dark Ages & White Nights’, St Petersburg, Russia, June 20–25, 2016
 - Scientific organizer of the Workshop on ‘CMB Distortions’, Chicago, USA, May 18–29, 2015
 - Scientific organizer of a special session, 223rd AAS meeting, Washington, USA, Jan 5–9, 2014
 - Scientific organizer of the Workshop on ‘Spectral Polarimetry’, Paris, France, Dec 2012
 - Scientific organizer of the Workshop on ‘21-cm Cosmology’, Toronto, Canada, June 2011
 - Scientific organizer of the Recombination Workshop held in Orsay/Paris, France, July 2009
 - Scientific organizer of the Workshop on ‘The Physics of Cosmological Recombination’, Garching/Munich, Germany, July 2008
- *Institutional activities*
 - Member of the RRE panel in Physics and Astronomy 2019
 - Organizer of the Schuster colloquium series, The University of Manchester, 2018 –
 - Organizer of the JBCA colloquium series, The University of Manchester, 2016 –
 - Support for research grant and fellowship applications, The University of Manchester, 2016 –
 - Graduate Student Advisory Committee, Institute of Astronomy, University of Cambridge, 2015
 - Organizer of the cosmology discussion group at JHU, 2012 – 2014
 - Organizer of the cosmology discussion group at CITA, 2009 – 2012
 - Member of the Postdoc selection committee at CITA, 2010
 - Member of the Visitor/Seminar/Hosting committee at CITA, 2009 – 2012
- *Referee* for MNRAS, A&A, Phys. Rev. D & Let., ApJ, JCAP, JHEP, EJP, Astr. Let., IJMPD

Software Development

- Author of BRPACK (www.Chluba.de/BRpack)
- Author of COSMOSPEC (www.Chluba.de/CosmoSpec)
- Author of COSMOREC and RECFast++ (www.Chluba.de/CosmoRec)
- Author of COSMOTHERM (www.Chluba.de/CosmoTherm)
- Author of SZPACK (www.Chluba.de/SZpack)

Outreach activities

- Public Lecture at Bluedot Festival, Manchester, July, 2019
 - Numerous interview questions to popular science articles (e.g., Quanta Magazine, Scientific American)
 - Volunteer at the Royal Society satellite summer exhibition at MoSI, 24–28 Oct, 2016
 - Volunteer at the Trafford Centre outreach event, 23/24 April, 2016
 - *Public talks* at the University of Toronto
 - Co-organizer of *Open door days*, Max Planck Institute for Astrophysics in Garching
 - Co-organizer of *Hands on Universe* workshop for school teachers, University of Göttingen
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