Tomáš Šoltinský

Curriculum Vitae

	Employment
2024	Postdoctoral Research Grant Holder , <i>National Institute of Astrophysics - Astronomical Observatory of Trieste</i> , Trieste, Italy
2023-24	Postdoctoral Research Fellow , <i>Tata Institute of Fundamental Research</i> , Mumbai, India Department of Theoretical Physics
	Education
2019-23	PhD in Physics, University of Nottingham, Nottingham, UK Supervisors: Dr James S Bolton, Dr Nina Hatch Thesis: Simulating neutral hydrogen across cosmic time: the 21-cm forest in late reionization models and the global 21-cm signal at cosmic dawn O Vice-Chancellor's Scholarship for Research Excellence O Graduated July 2023
2014-19	MPhys in Physics, Astrophysics, The University of Edinburgh, Edinburgh, UK O Graduated July 2019 with the First Class
2016-17	Exchange program , California Institute of Technology, Pasadena, USA o GPA: 3.3
	Technical Experience
2023-24	In-Kind Directable Software Development for the LSST-DESC, Tata Institute of Fundamental Research, Mumbai, India O Development of a code for calculating 3D trispectrum from N-body simulations
2018-19	MPhys Project, The University of Edinburgh, Edinburgh, UK Extreme Variability of Active Galactic Nuclei (report) Supervisor: Prof Andy Lawrence O Tested black hole accretion disc models in the context of extreme variability of AGN luminosity O Included a public summary (created a card game)
2018	Cormack Vacation Research Scholarship and Deans' Vacation Scholarship, The Institute
2018	for Astronomy, Edinburgh, UK 21cm Signal Marking the End of Dark Ages (report, poster) Supervisor: Dr José Oñorbe O Mock observations of global 21cm signal with focus on Dark Ages based on Nyx simulations
	Senior Honours Project, The University of Edinburgh, Edinburgh, UK Scalar Field Dark Energy Supervisor: Prof Andy Taylor O Simulated the expansion of the universe driven by dark energy modeled as a dynamical scalar field
2017-18	Telescope Group Project , <i>The University of Edinburgh</i> , Edinburgh, UK Measurement of the Characterising Properties of Exoplanet TrES-2b and its Host Star Supervisor: Prof Philip Best O Transit Photometry and Doppler Spectroscopy methods Observations performed with Edinburgh University's Meade MAX 20in ACF telescope
2017	Summer Undergraduate Research Fellowship, Caltech, Pasadena, USA
2017	Redefining the Habitable Zone Supervisor: Prof David J. Stevenson O Determining conditions under which water in liquid phase can be present on the surface of a planet
	Research in Experimental Physics, Caltech, LIGO, Pasadena, USA Signal Processing Supervisor: Dr. Thomas, I. Massinger

Supervisor: Dr Thomas J. Massinger

 $\, \circ \,$ Data analysis and investigation of glitches in data

Publications

T Šoltinský, G Kulkarni, S P Tendulkar, et al., "Prospects of a statistical detection of the 21-cm forest and its potential to constrain the thermal state of the neutral IGM during reionization", published in *MNRAS*, Volume 537, Issue 1, pp.364-378, 2025. (link)

E Puchwein, J S Bolton, L C Keating, et al. "The Sherwood-Relics simulations: overview and impact of patchy reionization and pressure smoothing on the intergalactic medium", published in *MNRAS*, Volume 519, Issue 4, pp.6162-6183, 2023. (link)

T Šoltinský, J S Bolton, M Molaro, et al. "Probing quasar lifetimes with proximate 21-centimetre absorption in the diffuse intergalactic medium at redshifts $z \ge 6$ ", published in *MNRAS*, Volume 519, Issue 2, pp.3027-3045, 2023. (link)

T Šoltinský, J S Bolton, N Hatch, et al. "The detectability of strong 21-cm forest absorbers from the diffuse intergalactic medium in late reionization models", published in *MNRAS*, Volume 506, pp. 5818-5835, 2021. (link)

C S Cockell, "Astrobiology: Understanding Life in the Universe", $\it Wiley-Blackwell$, 2015

O Contributed to and was cited in the Preface to the book

Memberships

2023

2019

SKA Cosmology and Epoch of Reionization SWGs, link Cosmology, link EoR

21-cm Cosmology Group (India), link

LSST-DESC, Large scale structure WG, provisional membership, link

Sherwood-Relics simulation suite, link

Conferences, Meetings, Talks, Lectures

Radio Cosmology and Continuum Observations in the SKA Era: A Synergic View,

International Centre for Theoretical Sciences, Bengaluru, India, Talk (link)

SKA Cosmology SWG Meeting, Observatoire de la Cote d'Azur, Nice, France, Talk

IFPU colloquium, Institute for Fundamental Physics of the Universe, Trieste, Italy, Colloquium

The First Gigayear(s), Hilo Hawaiian Hotel, Hilo, Hawai'i, Talk

The Origin and Evolution of Supermassive Black Holes, Sexten Center for Astrophysics, Sexten, Italy, Talk (link 1,link 2)

Cosmic Dawn at High Latitudes Conference, Royal Swedish Academy of Sciences, Stockholm, Sweden, Talk (link)

State of the Universe, Tata Institute of Fundamental Research, Mumbai, India, Seminar (link)

Cosmology in the Alps Conference, Les Diablerets, Switzerland, Talk (link)

Monday Afternoon Talks, *MIT Kavli Institute for Astrophysics and Space Research*, Cambridge, US, Talk

Pune-Mumbai Cosmology and Astro-Particle meeting, *The Inter-University Centre for Astronomy and Astrophysics*, Pune, India, Talk and Chaired a session (link)

Astronomical Society of India meeting, Indian Institute of Science, Bengaluru, India, Talk

HEA group meeting, Masaryk University, Brno, Czechia, Seminar

Advanced 21-cm Cosmology School and Workshop, National Institute of Science Education and Research, Bhubaneswar, India, Lectures (link)

Astrophysics Seminar, University of Helsinki, Helsinki, Finland, Seminar

Galaxy coffee, Max Planck Institute for Astronomy, Heidelberg, Germany, Talk

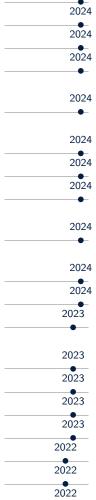
21-cm Series Seminar, University of Cambridge, Cambridge, UK, Seminar

Colloquium, National Centre for Radio Astrophysics, Pune, India, Colloquium

Lunch talk, The University of Nottingham, Nottingham, UK, Talk

Physics PG Poster Competition, The University of Nottingham, Nottingham, UK, Poster

21-cm Series Seminar, University of Cambridge, Cambridge, UK, Seminar



2021 2021 2021 2021 2021 2021 2021 2020	State of the Universe, Tata Institute of Fundamental Research, Mumbai, India, Seminar (link) National Astronomical Meeting (NAM2021), The University of Bath, Bath, UK, Talk SAZERAC 2.0, Recorded talk (link) Lunch talk, The University of Nottingham, Nottingham, UK, Talk Tessella Poster Competition, The University of Nottingham, Nottingham, UK, Poster Quasars and Galaxies on the Edge of Cosmic Reionisation, Royal Astronomical Society, UK, Flash poster Early Career Poster Exhibition, Royal Astronomical Society, UK, Poster (link) Lunch talk, The University of Nottingham, Nottingham, UK, Talk
	Schools, Courses
2023	Foundation HPC-Skills Course, DiRAC DP0 Virtual Summer School 2023, Vera C. Rubin Observatory/LSST
	Extracurricular Activities
2021	Mentoring at GROWNi.sk, Slovakia O Advising students in their career and study decisions
2016	Outreach talks, Pavol Horov Gymnasium, Michalovce, Slovakia O "From LA through half the globe to simulated universe", Topic: career path and simulations in astrophysics O "From LA to LA", Topic: gained experience and how to study abroad O "Science has no borders", Topic: my research experience and ongoing research in the world
2023-24	State of the Universe Seminar Series Organizer , <i>Tata Institute of Fundamental Research</i> , Mumbai, India
	Astronomy Postgraduate Student Representative, The University of Nottingham, Nottingham, UK
2021-22	Main point of communication between PG students and staff Lunch Talks Organizary The University of Nottingham Nottingham LUC
2019-22	Lunch Talks Organizer, The University of Nottingham, Nottingham, UK Physics Coursework Markey, The University of Nottingham, Nettingham, UK
2017-21	Physics Coursework Marker, The University of Nottingham, Nottingham, UK Student Ambassador, The University of Edinburgh and the University of Nottingham, Edinburgh
2018	 and Nottingham, UK Resided over the information desk and gave tours of the campus and the School of Physics and Astronomy at the Open Days, Post-offer Visit Days, Visiting Students Welcome Event UUKi Parliamentary Reception for the Go International: Stand Out Campaign, Westminster, London, UK Ambassador for The University of Edinburgh
	Awards
2018	RSE Cormack Undergraduate Astronomy Research Prize, Royal Society of Edinburgh, Edinburgh, UK
2016	For the "21cm Marking the End of Dark Ages" project Year 2 Physics Class medal, The University of Edinburgh, Edinburgh, UK
2014	For excellent performance during the 2015/16 session The memorial letter of St. Gorazd, The Ministry of Education, Science, Research and Sport of the Slovak Republic, Bratislava, Slovakia
2014	For successful representation of the Slovak Republic at Austrian Young Physicists' Tournament and achievement of bronze medal Best in Natural Sciences school award, Pavol Horov Gymnasium, Michalovce, Slovakia For representation of the school at various Physics and Maths competitions
	Skills
Programming	Python, Jupyter notebook, C, LATEX, Mathematica, basic in IDL
	Radiative Transfer, 21cmFAST, IRAF, SExtractor Large data analysis (binary and HDF5 formats), MCMC, OpenMP parallelisation, Slurm