

Tomáš Šoltinský

Curriculum Vitae

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Employment

2024

Postdoctoral Research Grant Holder, *National Institute of Astrophysics - Astronomical Observatory of Trieste*, Trieste, Italy

2023-24

Postdoctoral Research Fellow, *Tata Institute of Fundamental Research*, 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

- Vice-Chancellor's Scholarship for Research Excellence
- Graduated July 2023

2014-19

MPhys in Physics, Astrophysics, *The University of Edinburgh*, Edinburgh, UK

- Graduated July 2019 with the First Class

2016-17

Exchange program, *California Institute of Technology*, Pasadena, USA

- GPA: 3.3

Technical Experience

2023-24

In-Kind Directable Software Development for the LSST-DESC, *Tata Institute of Fundamental Research*, Mumbai, India

- Develop 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

- Tested black hole accretion disc models in the context of extreme variability of AGN luminosity
- Included a public summary (created a **card game**)

2018

Cormack Vacation Research Scholarship and Deans' Vacation Scholarship, *The Institute for Astronomy*, Edinburgh, UK

21cm Signal Marking the End of Dark Ages (**report**, **poster**)

Supervisor: Dr José Oñorbe

- Mock observations of global 21cm signal with focus on Dark Ages based on Nyx simulations

2018

Senior Honours Project, *The University of Edinburgh*, Edinburgh, UK

Scalar Field Dark Energy

Supervisor: Prof Andy Taylor

- Simulated the expansion of the universe driven by dark energy modeled as a dynamical scalar field

2017-18

Telescope Group Project, *The University of Edinburgh*, Edinburgh, UK

Measurement of the Characterising Properties of Exoplanet TrES-2b and its Host Star

Supervisor: Prof Philip Best

- 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

Redefining the Habitable Zone

Supervisor: Prof David J. Stevenson

- Determining conditions under which water in liquid phase can be present on the surface of a planet

2017

Research in Experimental Physics, *Caltech, LIGO*, Pasadena, USA

Signal Processing

Supervisor: Dr Thomas J. Massinger

- 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", submitted to *MNRAS*

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", 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 $z \geq 6$ ", 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", in *MNRAS*, Volume 506, pp. 5818-5835, 2021. ([link](#))

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

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

Memberships

2024

2024

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

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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

State of the Universe, *Tata Institute of Fundamental Research*, Mumbai, India, Seminar ([link](#))

National Astronomical Meeting (NAM2021), *The University of Bath*, Bath, UK, Talk

