

# Tomáš Šoltinský

AP31 Brahmagupta Building, Homi Bhabha Road,  
Colaba, 400005, Mumbai, India

Nationality: Slovak

☎ +421 915840400, +91 7738830395

✉ tomas.soltinsky@tifr.res.in

## Curriculum Vitae

### Employment

2023

**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

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

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

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

## Memberships

2024

**SKA-India SWG**, [link](#)

2023

**LSST-DESC, Large scale structure WG**, provisional membership, [link](#)

2019

**Sherwood-Relics simulation suite**, [link](#)

## Conferences, Meetings, Talks, Lectures

2024

**Cosmology in the Alps Conference**, Les Diablerets, Switzerland, Talk

2024

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

2024

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

2024

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

2024

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

2023

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

2023

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

2023

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

2023

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

2023

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

2022

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

2022

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

2022

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

2021

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

2021

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

2021

**SAZERAC 2.0**, Recorded talk ([link](#))

2021

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

2021

**Tessella Poster Competition**, *The University of Nottingham*, Nottingham, UK, Poster

2021

**Quasars and Galaxies on the Edge of Cosmic Reionisation**, *Royal Astronomical Society*, UK, Flash poster

2020

**Early Career Poster Exhibition**, *Royal Astronomical Society*, UK, Poster ([link](#))

2020

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

## Schools, Courses

2023

**Foundation HPC-Skills Course**, *DiRAC*

2023

**DP0 Virtual Summer School 2023**, *Vera C. Rubin Observatory/LSST*

## Extracurricular Activities

2023

**State of the Universe Seminar Series Organizer**, *Tata Institute of Fundamental Research*, Mumbai, India

2021

**Mentoring at GROWNi.sk**, Slovakia

○ Advising students in their career and study decisions

2016

**Outreach talks**, *Pavol Horov Gymnasium*, Michalovce, Slovakia

○ "From LA to LA", Topic: gained experience and how to study abroad

○ "Science has no borders", Topic: my research experience and ongoing research in the world

2022

**Astronomy Postgraduate Student Representative**, *The University of Nottingham*, Nottingham, UK

- Main point of communication between PG students and staff

2021-22

**Lunch Talks Organizer**, *The University of Nottingham*, Nottingham, UK

2019-22

**Physics Coursework Marker**, *The University of Nottingham*, Nottingham, UK

2017-21

**Student Ambassador**, *The University of Edinburgh and the University of Nottingham*, Edinburgh 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

2018

**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

For the "21cm Marking the End of Dark Ages" project

2016

**Year 2 Physics Class medal**, *The University of Edinburgh*, Edinburgh, UK

For excellent performance during the 2015/16 session

2014

**The memorial letter of St. Gorazd**, *The Ministry of Education, Science, Research and Sport of the Slovak Republic*, Bratislava, Slovakia

For successful representation of the Slovak Republic at Austrian Young Physicists' Tournament and achievement of bronze medal

2014

**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,  $\text{\LaTeX}$ , Mathematica, basic in IDL

Radiative Transfer, OpenMP parallelisation, 21cmFAST, IRAF, SExtractor

Large data analysis (binary and HDF5 formats)