

# BALU SREEDHAR

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## EDUCATION

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### University of Melbourne, Australia

March 2020 - Present

PhD in Astrophysics

*Supervisors:* Prof. Stuart Wyithe, Dr. Bradley Greig

*Expected Completion:* September 2023

### Pondicherry University, India

June 2014 - May 2019

Integrated MSc Physics

CGPA: 9.30

*Thesis:* On the Path-Integral Approach to Quantum Mechanics

*Supervisor:* Dr. B. Muthukumar

## TECHNICAL STRENGTHS

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### Software

GNU/Linux, Git, IRAF, L<sup>A</sup>T<sub>E</sub>X

### Programming

Python, C, C++, FORTRAN, Bash scripting, Slurm

## ACADEMIC VISITS

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- Visit to International Centre for Radio Astronomy Research (ICRAR), University of Western Australia *node*; March - April 2022  
*Host:* A/Prof. Chris Power

## PUBLICATIONS

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- **Balu, S.** et al, *Thermal and Reionisation History within a Large-Volume Semi-Analytic Galaxy Formation Simulation*, arXiv:2210.08910

## TALKS & POSTER PRESENTATIONS

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- 2022 Invited Talk** Kapteyn Institute Wednesday Talk, **Online** *21-cm Predictions for the Epoch of Reionisation.*
- 2022 Invited Talk** International Centre for Radio Astronomy Research (ICRAR), University of Western Australia, **In-person** *21-cm Predictions for EoR using Semi-Analytic Galaxy Formation applied to GENESIS+.*
- 2022 Contributed Talk** 16<sup>th</sup> The Australian National Institute of Theoretical Astrophysics (ANITA) Workshop, **In-person** *Exploring the Effects of Mass Resolution in Cosmological Simulations on EoR Statistics.*
- 2022 Contributed Talk** SAZERAC Sip, **Online** *Monte-Carlo Augmentation applied to N-Body Simulations for Semi-Analytic Modelling.*
- 2021 Contributed Talk** 8<sup>th</sup> Annual Science At Low Frequencies (SALF) Conference, **Online** *Impact of Mass Resolution and Galaxy Formation on 21-cm Global Signal from EoR.*
- 2021 Poster presentation** ACAMAR 7: Australia-China Workshop on Astrophysics, **Online**, *A computationally cheap trillion particle N-body simulation.*
- 2021 Contributed Talk** 4<sup>th</sup> Global 21-cm Workshop, **Online**, *Impact of Galaxy Formation on 21-cm Global Signal.*
- 2021 Contributed Talk** Regional Astronomy Meeting 2021, **Online**, *Semi-Analytic Galaxy Formation Applied to the Epoch of Reionisation.*

**2021 Poster presentation** ASA Annual Science Meeting 2021, Melbourne, Australia, **In-person**, *A computationally cheap trillion particle N-body simulation*.

**2019 Poster presentation** at Inter University Centre for Astronomy and Astrophysics (IUCAA), Pune, India as part of the SITARE programme, on how different parameters of stars' such as distance, temperature, size, structure, and mass are determined.

## COMPUTING GRANTS

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- **5.2M SU as Co-PI**, Gadi, National Computational Infrastructure (NCI), Australia; PI: Yuxiang Qin

## AWARDS & SCHOLARSHIPS

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- **Melbourne Research Scholarship**, University of Melbourne, 2020 - 2023.
- **Postgraduate Merit Scholarship**, Pondicherry University, 2017 - 2019.
- **Merit Scholarship**, Pondicherry University, 2014 - 2017.

## WORKSHOPS TRAINING

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**2020** Harley Wood School of Astronomy, hosted by ICRAR.

**2019 - 2020** Visiting Student in the Astronomy and Astrophysics group at Raman Research Institute (RRI), Bangalore under Prof. Ravi Subrahmanyan and Prof. N. Udaya Shankar.  
**Project Title:** Secondary Science with PRATUSH.

**2019 Participant** of the Advanced SITARE (Southampton IUCAA Training for Astronomical Research and Education) workshop conducted at IUCAA, Pune during January 10-16, 2019.

**2018 Participant** of SITARE conducted in collaboration between University of Southampton, UK and IUCAA, Pune during 17-19 September, 2018.

**2018 Summer intern** at Indian Institute of Astrophysics (IIA), Bangalore, India (June, 2018) under Dr. Maheswar Gopinathan.

**Project Title:** Determination of Diffuse Interstellar Bands in LAMOST spectra

**2018 Participant** of Indian Institute of Astrophysics (IIA)'s Summer School on Astronomy and Astrophysics at Kodaikanal Solar Observatory (15-30 May, 2018).

**2017 Indian Academy of Sciences (IASc) Summer Research Fellow** 2017 at Saha Institute of Nuclear Physics (SINP), Kolkata under the guidance of Prof. Sukalyan Chattopadhyay.

**Project Title:** Introduction to Relativistic Heavy-Ion Collisions

**2016 Participant** of Physics Training and Talent Search (PTTS) 2016 (December), funded by Infosys Science Foundation, conducted at Regional Institute of Education (RIE), Mysore for meritorious undergraduates in mathematics and physics.

**2016 Summer intern** at Pondicherry Magnetic Observatory of Indian Institute of GeoMagnetism (IIGM) under Dr. Anil Iype (May-June 2016).

**Project Title:** Principles of Observatory Magnetometry

## TEACHING AND PROFESSIONAL ACTIVITIES

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- **Demonstrator, Third Year Astrophysics**, University of Melbourne, Semester 2 2022
- **Demonstrator, First Year Astrophysics**, University of Melbourne, Semester 2 2022
- **Demonstrator, Third Year Astrophysics**, University of Melbourne, Semester 1 2022

- **Demonstrator, First Year Physics**, University of Melbourne, Semester 1 & 2 2021
- **Local Organising Committee member**, Harley Wood School of Astronomy 2021
- **Organiser**, Weekly Astrophysics group meeting, University of Melbourne, 2021 - 2022
- **Student Representative** of the ARC Centre of Excellence for All Sky Astrophysics in 3D (ASTRO3D) for the University of Melbourne, 2021 – present
- **Equity, Diversity & Inclusion Committee member**, ASTRO3D, for the University of Melbourne, 2021 - present
- **Student Member** of the ARC Centre of Excellence for All Sky Astrophysics in 3D, 2020 – present
- **Student Member** of Astronomical Society of Australia