Vida Saeedzadeh, Ph.D.

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ADS Profile | Google Scholar | Personal Website

Professional Experience

Assistant Research Scientist Baltimore, USA | October 2024 - Present
The Johns Hopkins University

- Conducting research using FOGGIE cosmological hydrodynamic simulations to analyze the co-evolution of galaxies and their gaseous halos

Research Assistant Victoria, Canada | September 2019 - May 2024
University of Victoria

- Explored the origin and dynamic of the multiphase structure of the circumgalactic medium, Investigating the statistics and properties of dual/multiple AGNs and their host galaxies in contrast to single AGNs, Exploring the properties of host galaxies of nano-Hertz Gravitational Wave sources using state-of-the-art Romulus cosmological simulations

Guest Researcher New York City, USA | September 2023 - October 2023
Simons Foundation, Center for Computational Astrophysics

- Developed a novel model for CGM refinement to enhance the resolution of CGM around galaxies without enhancing the galaxy resolution

Research Assistant Tehran, Iran | September 2017 - August 2019
Shahid Beheshti University and Alzahra University

- Studied on dynamics of a scalar field which evolve from light-dark matter-like behavior to a combination of heavy dark matter-like and dark energy-like behavior
- Studied the fully dynamical and aspherical solutions in modified gravity theories displaying the Vainshtein screening mechanism

Education

Ph.D. in Physics - University of Victoria Victoria, Canada | September 2019 - May 2024

- Supervisor: Prof. Arif Babul
- Dissertation title: "Dynamics of Galaxy Evolution: Insights from the Circumgalactic Medium and Supermassive Black Hole Mergers"

M.Sc. in Astrophysics – Alzahra University Tehran, Iran | September 2015 - February 2018

- Supervisor: Prof. Taghi Mirtorabi
- Dissertation title: "Study on the fully dynamical and aspherical solutions in modified gravity theories displaying the Vainshtein screening mechanism"

B.Sc. in Physics - Iran University of Science and Technology Tehran, Iran | September 2010 - September 2014

Publications

- **Vida Saeedzadeh**, S Lyla Jung, Douglas Rennehan, Arif Babul, Michael Tremmel, Thomas R Quinn, Zhiwei Shao, Prateek Sharma, Lucio Mayer, E O'Sullivan, S Ilani Loubser, *Cool and gusty, with a chance of rain: dynamics of multiphase CGM around massive galaxies in the Romulus simulations*, Monthly Notices of the Royal Astronomical Society, Volume 525, Issue 4, November 2023, Pages 5677–5701
- **Vida Saeedzadeh**, Suvodip Mukherjee, Arif Babul, Michael Tremmel, Thomas R Quinn, *Shining Light on the Hosts of the Nano-Hertz Gravitational Wave Sources: A Theoretical Perspective*, Monthly Notices of the Royal Astronomical Society, 2024;, stae513
- **Vida Saeedzadeh**, Arif Babul, Suvodip Mukherjee, Michael Tremmel, Thomas R. Quinn, Lucio Mayer, 2024. *Dual AGNs: Precursors of Binary Supermassive Black Hole Formation and Mergers*. The Astrophysical Journal. 2024 Nov 7; 975(2):265.
- **Vida Saeedzadeh**, Arif Babul, Belaid Moa, 2024. *Modeling Circumgalactic Medium with a super-Lagrangian Refinement Scheme* [In prep]
- S Lyla Jung, Douglas Rennehan, **Vida Saeedzadeh**, Arif Babul, Michael Tremmel, Thomas R Quinn, S Ilani Loubser, E O'Sullivan, Sukyoung K Yi, *Massive central galaxies of galaxy groups in the ROMULUS simulations: an overview of galaxy properties at z = 0*, Monthly Notices of the Royal Astronomical Society, Volume 515, Issue 1, September 2022, Pages 22–47
- Mohit Raj Sah, Suvodip Mukherjee, **Vida Saeedzadeh**, Arif Babul, Michael Tremmel, Thomas R. Quinn, 2024. *Imprints of Supermassive Black Hole Evolution on the Spectral and Spatial Anisotropy of Nano-Hertz Stochastic Gravitational-Wave Background*, Monthly Notices of the Royal Astronomical Society, Volume 533, Issue 2, September 2024, Pages 1568–1582
- Padawer-Blatt, Aviv, Zhiwei Shao, Renier T. Hough, Douglas Rennehan, Ruxin Barré, **Vida Saeedzadeh**,
- Arif Babul et al. Core to Cosmic Edge: SIMBA-C's New Take on Abundance Profiles in the Intragroup Medium at z= 0. Universe 11, no. 2 (2025): 47.

Academic Experience

Peer Reviewer Victoria, Canada | Summer 2024
Monthly Notices of the Royal Astronomical Society (MNRAS)

- Reviewed one manuscript and its resubmission

Communications Officer Victoria, Canada | September 2021 - September 2024
University of Victoria, Astronomy Research Centre

Student Mentor Victoria, Canada | September 2021 – May 2024
University of Victoria

- Mentored two students and supervised their research projects

Lab Instructor Victoria, Canada | September 2019 - September 2020
University of Victoria

- ASTRO-101, ASTRO-102

Teaching Assistant September 2013 - September 2021
[Multiple Universities]

- Student Seminar, University of Victoria
- Introduction to Cosmology, Alzahra University
- General Physics, Iran University of Science and Technology

Volunteer Experience

- Executive Board Member N-Body Shop code of conduct | University of Victoria | 2021 – 2023
- Academic Mentor Physics Dept Mentorship Program | University of Victoria | 2020 – present
- Academic Representative PAGSA | University of Victoria | 2020 – 2022
- Event Organizer and Chair Astronomy Seminar Series | University of Victoria | 2020 – present
- Organizer International Orientation Day | University of Victoria | 2020
- Board of Directors Member Students Scientific Association, School of Physics | IUST | 2010 – 2013
- Executive Board Member Star Observation Tours | Loot Sky Astronomy Centre | 2010 – 2012
- Co-Founder Astronomy Scientific Association | RCIEE | 2010 – 201

Awards

- L.E. Frances Druce Award in Science University of Victoria, 2023
- Canadian Space agency scholar grant (3 times) Canadian Space Agency, 2022, 2023, and 2024
- Faculty of Graduate Student Award University of Victoria, 2023
- Fully Scholarship to Attend IHPC Summer School in Athens, Greece SciNet HPC, 2022
- Criswick Award University of Victoria, 2020
- Graduate Awards University of Victoria, 2020 - 2024
- Graduate Fellowship University of Victoria, 2019
- Graduate Merit Award Alzahra University 2015 - 2017
- Undergraduate Merit Award Iran University of Science and Technology, 2010 - 2014

Invited Talks

- Center for Computational Astrophysics – Simons Foundation, 2025: Structure and Dynamics of of Circumgalactic medium around galaxies
- École Normale Supérieure (ENS) de Lyon, 2024 – Cooling in CGM of massive galaxies

- Center for Computational Astrophysics – Simons Foundation, 2023: Shining Light on the Hosts of the Nano-Hertz Gravitational Wave Sources
- Princeton University, 2023: Supermassive binary blackhole and galaxy connection: Where do we expect the gravitational wave sources detectable from Pulsar Timing Array to reside?
- Yale University, 2023: Cool and gusty, with a chance of rain: Dynamics of multiphase CGM around massive galaxies in the Romulus simulations
- Max Planck Institute for Astronomy, 2023: Cool and gusty, with a chance of rain: Dynamics of multiphase CGM around massive galaxies in the Romulus simulations
- Center for Computational Astrophysics – Simons Foundation, 2023: Multiphase structure of CGM in Romulus simulations
- University of Wrocław, 2022: Dual AGNs: Detecting bright AGN pairs onto the path to binary black holes and black hole mergers
- Institute of Computational Science, University of Zurich, 2022: Dual AGNs: Detecting bright AGN pairs onto the path to binary black holes and black hole mergers

Presentations

- XXXII IAU General Assembly, 2024: Dual AGNs: Detecting bright AGN pairs onto the path to binary black holes and black hole mergers
- Canadian Astronomical Society AGM, 2023: Multiphase CGM around massive galaxies
- 44th Assembly of Committee on Space Research COSPAR, 2022: Dual AGNs: Detecting bright AGN pairs onto the path to binary black holes and black hole mergers
- International High-Performance Computing Summer School, 2022: Studying galaxies' circumgalactic medium by developing hyper refinement model using HPC
- 51st annual meeting of the Canadian Astronomical Society, 2021: Dual AGNs: Detecting bright AGN pairs onto the path to binary black holes and black hole mergers
- British Columbia's Cosmology Meeting, 2021: Dual AGNs
- Kavil Institute for Astronomy and Astrophysics Conference on Gas in Galaxies 2021: Resolving cold circumgalactic medium gas in Romulus simulations
- 50th annual meeting of the Canadian Astronomical Society, 2021: Resolving cold circumgalactic medium gas in Romulus simulations
- British Columbia's Cosmology Meeting, 2020: The origin of the multiphase structure in the intracluster medium
- Alzahra University Cosmology Forum, 2016: Experimental tests of general relativity