SHUBHAN BHATIA

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EDUCATION

New York University Abu Dhabi   2020 - 2024
Bachelor of Science in Physics
Founders' Day Award Recipient

Ludwig-Maximilians-Universität Müenchen   2025 - Present
Master of Science in Astrophysics

PUBLICATIONS

M. Nori, **S. Bhatia**, A.V. Macciò, FUZZY-GASOLINE*: Cosmological hydrodynamical simulations of dwarf galaxy formation with Fuzzy Dark Matter*, under review for publication in the *Monthly Notices of the Royal Astronomical Society* (arXiv: 2411.09733).

RESEARCH EXPERIENCE

Independent Research   Oct. 2024 Present
Research Supervisor: Dr. Joseph Gelfand
Center for Astrophysics and Space Science (CASS), New York University Abu Dhabi

- Developing a U-band catalog of variable sources in IC 10, a starburst dwarf irregular galaxy in the Local Group, using $\sim$5 years of weekly Swift UVOT observations to study the impact of massive stars on the interstellar medium.

Undergraduate Research   Sept. 2022 Oct. 2024
Research Supervisors: Dr. Andrea Valerio Macciò and Dr. Matteo Nori
Galaxy Formation Group, Center for Astrophysics and Space Science (CASS), New York University Abu Dhabi

- **Bachelor Thesis:** Conducted cosmological zoom-in simulations to study the hydrodynamical evolution of dwarf galaxies in Fuzzy Dark Matter (FDM) cosmologies, developing a suite of 30 hydrodynamical and dark matter-only simulations with the FUZZY-GASOLINE code on NYUAD's Jubail HPC cluster.
- Characterized the stellar properties and star formation histories of FDM dwarf galaxies, identifying delayed star formation in specific halo mass ranges and overall minimal differences relative to NIHAO Cold Dark Matter (CDM) analogs.

RELEVANT COURSEWORK

Electricity and Magnetism, Astrophysics, General Relativity, Mechanics, Advanced Experimental Laboratory, Introduction to Detector Electronics, Numerical Laboratory, Introduction to Advanced Astrophysics, Cosmology

TECHNICAL SKILLS

Programming & Software: Python, C++, C, IDL, HTML, CSS, JavaScript, Java, Fortran, PHP, R, Qiskit, Arduino, TensorFlow, SQL, LaTeX, Mathematica, MATLAB, Statistica, Endnote, IRAF, ds9, Git, Stata, HEASoft, fv, Tipsy

COMMUNITY ENGAGEMENT

Treasurer and Outreach Coordinator - Spacebar (Astronomy Student Interest Group)
Podcast Co-host - Spaced Out