NABEEL REHEMTULLA

CURRICULUM VITAE

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EDUCATION

BS University of Michigan - Ann Arbor — Expected April 2021
Major Astronomy & Astrophysics Honors
Major Interdisciplinary Physics
Minor Computer Science

RESEARCH EXPERIENCE

Non-Parametric Spherical Jeans Mass Estimation with B-Splines Fall 2017 – Present
University of Michigan, Ann Arbor
Advisor: Dr. Monica Valluri; Collaborator/Co-author: Dr. Eugene Vasiliev

- Developed a novel implementation of spherical Jeans modeling
- Thoroughly tested the routine with self-simulated halos and halos from the Auriga and Latte cosmological simulations
- Preparing for application to the Milky Way using DESI and Gaia data
- Journal paper intended for MNRAS and GitHub repository in prep.

Star Formation Rate in Merger Galaxies Summer 2019
Kitt Peak National Observatory, ASTRO 461 Ground Based Observatories
Advisor: Dr. Sally Oey

- Proposed an original observing project to be executed at Kitt Peak National Observatory and reviewed by a mock time allocation committee
- Observed at MDM Observatory's 1.3-m McGraw Hill telescope; reduced and analyzed data and presented findings orally and in writing

TEACHING EXPERIENCE

Religious Education Center Teacher Sept. 2019 – May 2020
Ismaili Center of Detroit (local mosque)

- Instructed a weekly class of 7th and 8th grade mosque members in the significance behind religious practices and Islamic history
- Adapted instruction to maintain student engagement in transition to remote classes

Academic Success Program Tutor Fall 2019
University of Michigan, Athletic Department

- Met with student athletes in 1-on-1 sessions to supplement their learning in coursework they struggled with
- Documented student progress for program staff to monitor their academic success

Astronomy Structured Study Group Co-Facilitator January 2019 – April 2019
University of Michigan, Department of Astronomy

- Instructed non-STEM majors in weekly meetings covering astronomy fundamentals
- Redesigned the entire curriculum to better engage and retain students, yielded threefold increase in sustained attendance from previous semesters

English as a Second Language Teacher Summer 2018
Ismaili Center of Detroit (local mosque)

- Taught a group of young adult refugees intermediate level English, focusing on communication skills necessary in applying to jobs

PRESENTATIONS

Non-Parametric Spherical Jeans Mass Estimation with B-Splines
Hybrid Poster / Presentation, Michigan Institute of Data Science Poster Symposium 2020, November 2020; Won Outstanding Undergraduate Poster award.

Future Hybrid Poster / Presentation, 237th American Astronomical Society Meeting *DESI Special Session*, January 2021.

Star Formation Rate in Merger Galaxies
Presentation, ASTRO 461 – Ground Based Observatories, May 2019.

Ironing out Jeans: Developing a robust implementation of the spherical Jeans equation
Poster, Astronomy Undergraduate Poster Session, April 2019.

AWARDS

Outstanding Undergraduate Poster November 2020
Michigan Institute for Data Science Poster Symposium 2020
Non-Parametric Spherical Jeans Mass Estimation with B-Splines

OTHER PROJECTS

Website Architect for GHOSTS HST Survey Summer 2020 – Present
University of Michigan, Department of Astronomy & Leibniz Institute for Astrophysics

- Proposed and designed a ground-up rebuild of the GHOSTS survey website to GHOSTS P.I. Roelof de Jong and team member Dr. Eric Bell
- Improving maintainability and expandability of the survey website by leveraging my expertise in computer science

PROFESSIONAL AFFILIATIONS

American Astronomical Society, Undergraduate Member Fall 2020 – Present
Dark Energy Spectroscopic Instrument, Undergraduate Member Fall 2020 – Present

OUTREACH

Student Astronomical Society, University of Michigan, Ann Arbor
Executive Board, Treasurer April 2020 – Present

Ismaili Center of Detroit (Local Mosque), Southfield, MI
Regional Youth Volunteer Co-Facilitator July 2018 – Present
Youth & Sports Board Regional Representative July 2020 – Present

LANGUAGES

English: Native Language
Spanish: Intermediate Listening, Speaking, Reading and Writing
Programming Languages: Proficient in Python, C++, HTML; Familiar with Java, Swift, JavaScript