SELIM KALICI

SUNY University at Oswego
skalici@oswego.edu

Education

SUNY University at Oswego *June 2024*
Overall GPA: 3.80
B.A Mathematics
Mathematics GPA: 3.90
B.Sc Physics
Physics GPA: 3.75

Research Experience

June - August 2023
INAF Capodimonte Astronomical Observatory, Supervised under Dr. Anupam Bhardwaj:

- Modeling Ultra Long Period Cepheid stars in the Magellanic Clouds
- Currently a work in progress!

June - August 2022
Max Planck Institute for Astrophysics, Supervised under Dr. Earl P. Bellinger:

- Developed machine learning methods for predicting the physical parameters of observed stars from observables.
- Learned theory of stellar pulsation and how its used to model variable stars.

Spring 2021 - Present
SUNY University at Oswego, Supervised under Dr. Sashi M. Kanbur:

- Using state-of-the-art software to calculate the growth and development of stars over time.
- Fitting and analyzing light curves of theoretical and observed stars with several methods.

Publications

1. **Beyond the Period-Luminosity relation: Deep Learning Estimate of Stellar Parameters for RR Lyrae in Messier 3.**
Selim Kalici, Susmita Das, Anupam Bhardwaj, Hugh Riley Randall, Earl P. Bellinger, Shashi M. Kanbur. (2023)
Monthly Notices of the Royal Astronomical Society. (In Prep.)

2. **Bridging theory and observation in stellar pulsation models: The impact of convection on instability strip boundaries for Classical and Type-II Cepheids.**
Mami Deka, Earl P. Bellinger, Sukanta Deb, Shashi M. Kanbur, Hugh Riley Randall, **Selim Kalici**, Susmita Das, Anupam Bhardwaj. (2023)
Monthly Notices of the Royal Astronomical Society. (In Prep.)

3. **A multi-phase study of theoretical and observed light curves of classical Cepheids in the Magellanic Clouds.**
   Kerdaris Kurbah, Sukanta Deb, Shashi M. Kanbur, Susmita Das, Mami Deka, Anupam Bhardwaj, Hugh Riley Randall, **Selim Kalici**. (2023)
   Monthly Notices of the Royal Astronomical Society, Accepted

Talks & Presentations

2023 A Derivation of The Oppenheimer-Volkoff Equation.
QUEST, SUNY University At Oswego. *Oswego, New York*

2023 Simplicial Homology in Physics.
QUEST, SUNY University At Oswego. *Oswego, New York*

2022 Estimating stellar parameters of RR Lyrae variables with deep learning.
Max Planck Institute of Astrophysics. *Garching, Germany*

2022 General Relativity & Curvature.
Capstone presentation, SUNY College At Oswego. *Oswego, New York*

2022 Applying machine learning to stellar lightcurves.
QUEST, SUNY University At Oswego. *Oswego, New York*

2022 Taylors Theorem in Higher Dimensions.
QUEST Poster Session, SUNY University At Oswego. *Oswego, New York*

2021 Machine Learning Applications to Stellar Astrophysics.
Rochester Academy of Science Fall Scientific Paper Session. *Rochester, New York*

2021 Machine learning estimate for distance modulus to Messier 3.
RISE Summer Scholar Symposium. Oswego, New York

Awards & Grants

- Louis R. DeRitter Mathematics Department Award
  Awarded to students for their performance in upper-division Mathematics courses
- President's Honors
  Awarded to students who achieve a GPA of 3.8
- Sigma Xi Honors Society Physics & Astronomy QUEST Award
  Awarded to research talks given at QUEST
- RISE academic research grant
- SCAC research grant

Relevant Work Experience

2022 - Present

CRLA certified Mathematics, Physics, Astronomy & Computer Science Tutor
Office of Learning Services, SUNY College at Oswego

- Took part in an accredited tutor training program to develop advanced tutoring skills.
- Tutoring students in a range of subjects varying from computer science, differential equations, and complex analysis.

Independent Studies & Relevant Coursework

*All 499 Course numbers indicate an Independent Study

MATSEM: Differential Topology *supervised by* Dr. John Meyers

PHY499: (Upcoming) Introductory Quantum Field Theory *supervised by* Dr. Carolina Ilie

AST499: General Relativity *supervised by* Dr. Sashi Kanbur

MAT499: Geometric Topology in Physics *supervised by* Dr. Indu Rasika Churchill

MAT499: Machine Learning Mathematics *supervised by* Dr. John Meyers

MAT448: Partial Differential Equations & Orthogonal Functions

References

Dr. Sashi M. Kanbur
Professor, SUNY University At Oswego
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Dr. Earl P. Bellinger
Stellar Astrophysicist, Yale University
`https://earlbellinger.com/`

Casey Towne
Associate Director, Office of Learning Services
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