MOHIRA RASSEL

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RESEARCH EXPERIENCE

Harvard University/Banneker & Aztlan Institute June 2018 - August 2018
Post Baccalaureate Research *Adviser: Dr. Federico Fraschetti*

- Analyzed flux variability in a 15 year epoch in Supernova Remnant Cassiopeia A to determine a quantitative model.
- Applied an analytic expression of the temporal magnetic field variation to three shocks .
- Analytically determined best fit parameters of the flux increase and decrease.
- Delivered 10 minute presentation on findings to the CfA community.

University of Colorado Boulder/LASP May 2016 - August 2017
Undergraduate Research *Advisor: Dr. Axel Brandenburg*

- Simulated a turbulent dynamo with an outer corona using Pencil Code.
- Explored the relationship between polarized intensity and magnetic helicity.
- Explored wavelength dependence of Faraday rotation to infer magnetic twist in the corona at long wavelengths.

PUBLICATIONS

Rassel, M., Fraschetti, F. "Amplification of magnetic field downstream of inward shocks in supernova remnant Cassiopeia A" (in preparation)

Brandenburg, A., **Ashurova**, M. B., Jabbari, S.: 2017, *"Compensating Faraday depolarization by magnetic helicity in the solar corona,"* Astrophys. J. Lett. 845, L15

EDUCATION

University of Colorado Boulder *Boulder, CO*
BA, Astronomy/Astrophysics May 2018
Minor in Scandinavian Studies
GPA: 3.17/4.0

SCIENCE TALKS AND POSTERS

Harvard-Smithsonian Center for Astrophysics August 10, 2018
"Tracing the magnetic field at the shockwaves in Supernova Remnant Cassiopeia A"

Gulf Coast Undergraduate Research Symposium October 6, 2018
"Tracing the magnetic field at the shockwaves in Supernova Remnant Cassiopeia A" *Rice University*

American Astrophysical(AAS) 233rd Meeting January 2019
Will present on the research conducted in summer *Seattle, WA*

AWARDS AND GRANTS

Banneker Institute Travel Award - AAS 233 meeting 2019
NASA Grant NNX15AJ71G
Dean's List 2018
First Generation Scholars, University of Colorado Boulder 2012-2018
CU-Boulder Gold Grant 2013-2018

SERVICE AND OUTREACH

CU-Stars (Science, Technology and Astronomy Recruits) November 2014 - Present
University of Colorado Boulder *Advisor: Dr. Erica Ellingson*

· Participated in community outreach and taught science and astronomy classes to high school students in Colorado. Hosted and engaged public during solar eclipses.

"Frontiers of Science Institute Summer Program" July 2016
Sommers Bausch Observatory/Fiske Planetarium *Advisor: Dr. Erica Ellingson*

Hosted a cohort from the Institute. Prepared and led a treasure/solar system hunt while teaching students about properties of the solar system. Hosted a stargazing after party where taught students about telescopes and stars.

URSA-Underrepresented Students in Astronomy January 2018-Present
University of Colorado Boulder

· Pilot organization that is aimed at retention of underrepresented students Astronomy and related field. Building community and resources to bolster underrepresented students.

TEACHING AND TUTORING

Centennial School November 2018
San Luis, CO

· Prepared a planetarium show and presented to kindergarteners, 1st 2nd graders. Co-led a class on astrobiology and ran an experiment in exoplanets using LEGO.

Frederick High School October 2018
Frederick, CO

· Co-led a class teaching K8-K12 students about astrobiology and the probability of life in the universe.

Trinidad High School February 2015
Trinidad, CO

· Prepared and taught 6 classes to high school students ranging from freshmen to seniors about neutron stars and their properties.

SASC-Student Academic Success Center November 2017 - May 2018
University of Colorado Boulder *Tutor in Russian, Astronomy*

Russian Language Tutor January 2018- May 2018
University of Colorado Boulder *RUSSIAN 3010,4020*

· Tutored first year and upperclass students in Russian.

COMPUTER AND PROGRAMMING SKILLS

Computer Languages Python
Software & Tools Excel, Mathematica

RELEVANT COURSES

Physics Courses
Quantum Mechanics I,II
Solid State
Electromagnetism I,II
Classical Mechanics I,II

Astrophysics Courses
Solar and Space Physics
Astrophysics I, II
Cosmochemistry
Solar System Formation and Dynamics
Planets and Their Atmospheres

Coding Courses
Computational Techniques in Python
Data Analysis and Computing with Python

Math Courses
Calculus I,II,III
Differential Equations with Linear Algebra

LANGUAGES

English, Russian, Tajik

PROFESSIONAL MEMBERSHIPS

American Astronomical Society (AAS)

Society for the Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS)