

SOUMYA RAY

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School of Earth and Space Exploration
Arizona State University
Tempe, 85281, AZ

EDUCATION

- 2016 - Present PhD Candidate in Geological Sciences, School of Earth and Space Exploration, Arizona State University
Committee: Prof. Meenakshi Wadhwa (Chair), Prof. Christy Till, Prof. Laurence Garvie, Prof. Steven Desch, Prof. Richard Hervig.
- 2013 MS in Geology, University of Delhi, India
- 2011 BS in Geology, Fergusson College, University of Pune, India
Minors in Physics, Chemistry, Mathematics.

RESEARCH AND PROFESSIONAL EXPERIENCE

- 2016 - Present Isotope Cosmochemistry and Geochronology Laboratory, ASU
Primary Advisor: Prof. Meenakshi Wadhwa
- Extensive clean lab experience.
 - Developing a new protocol for the simultaneous purification of Fe and Si isotopes via column chromatography.
 - Measuring non-traditional stable isotopes via MC-ICMPS to understand the accretion and differentiation of planetary and asteroidal bodies.
 - Determination of elemental concentration and column yields using Quadrupole-ICPMS.
- Center for Meteorite Studies, ASU
- Studying the mechanical properties of iron meteorites and implications for the asteroid (16) Psyche.
Collaborator: Prof. Laurence Garvie
 - Determination of oxygen fugacity of meteorites using Electron Microprobe Analyzer.
Collaborator: Dr. Devin Schrader
- School of Earth and Space Exploration, ASU
- Accretion and core formation models.
Collaborator: Dr. Joe O'Rourke
- 2015 - 2016 Geologist, Geological Survey of India
- Field geologist with experience in structural mapping, mineral exploration, geochemical mapping and sampling.
- 2012 - 2015 Research Fellow, University of Delhi, India
- Geochemistry and petrogenesis of granitoids and pegmatites from South Delhi Fold Belt, India.
 - Geochemistry of meta-sediments from Shimla and Chail Groups, Himachal Himalaya, India.
- 2011 Summer Intern, Geological Survey of India

TEACHING EXPERIENCE

- 2017 (Fall) Introduction to Geology (GLG 103)
- 2018 (Spring) Geochemistry (GLG 481)

HONORS AND AWARDS

- 2020 Ninninger Student Travel Award (\$1000)
- 2020 ASU GPSA Student Travel Award (\$950)
- 2019, 2020 Graduate Excellence Award, The College, ASU
- 2019 NASA Planetary Sciences Division Travel Grant (82nd Meteoritical Society Meeting) (\$1800)
- 2018 - 2021 NASA Earth and Space Science Fellowship (\$ 122,682)
- 2018 SESE Summer Exploration Fellowship, ASU (\$ 8,000)
- 2017 Barringer Crater Company Travel Grant (80th Meteoritical Society Meeting) (\$1000)
- 2012 - 2015 Research Fellowship in Earth, Atmospheric, Oceanic and Planetary Sciences, (All India Rank - 4)
Council of Scientific and Industrial Research, Government of India
- 2013 Gold Medal, University of Delhi, India (MS)
- 2011 Science Meritorious Student for the Year in Geology
- 2011 University Topper, University of Pune (BS)

CONFERENCE ABSTRACTS (* talks)

- 2021 **Ray S*** and Wadhwa M. Correlated iron and silicon isotope compositions of aubrites as tracers of differentiation processes.
Abstract#2652, LPSC LIII.

- 2020 **Ray S**, Rai V. K., Wadhwa M. A new method for coupled investigation of silicon and iron isotopes in the same sample: Application to understanding accretion and differentiation processes on meteorite bodies. Abstract#2558, LPSC LI.
- 2019 **Ray S***, Wadhwa M, Rai V. K, Garvie L. A. J. Iron isotope composition of Si-bearing metal nodules from the Mount Egerton aubrite. Abstract# 6427, 82nd Meteoritical Society Meeting.
- 2019 **Ray S***, Wadhwa M, Rai V. K. Iron isotope composition of large metal nodules from the Norton County aubrite. Abstract# 1960, LPSC L.
- 2019 Marchi S, Durda D. D, Polanskey, C. A, Asphaug E, Bottke W. F, Elkins-Tanton L. T, Garvie L. A. J, **Ray S**, Williams D. A. Impact experiments in Fe-Ni ingots and iron meteorites: Implications for the NASA Psyche Mission. Abstract# 1563, LPSC L.
- 2018 **Ray S***, Wadhwa M, Rai V. K. The origin of metal grains from enstatite achondrites based on iron isotope compositions. Abstract# 2140, LPSC XVII.
- 2018 Garvie L. A. J, **Ray S**, Wadhwa M, Witmann A, Domanik K. Scrutinizing six silicide-bearing of metal from the Norton County aubrite. Abstract# 2104, LPSC XVII.
- 2017 **Ray S***, Rai V. K, Hines R, Romaniello S. J, Wadhwa M. Iron isotope compositions of achondritic meteorites. Abstract#6400, 80th Annual Meteoritical Society Meeting.
- 2017 Garvie L. A. J, Wittman A, **Ray S**, Wadhwa M. Elemental and Structural Diversity in Norton County Metal Nodules. Abstract#6384, 80th Annual Meteoritical Society Meeting.

PUBLICATIONS

- In prep* **Ray S**, Wadhwa M, Rai V. K, Garvie L. A. J. Correlated and iron isotope and silicon in aubrite metals reveal structure of their asteroidal parent body. To be submitted to *Nature Communications*.
- In prep* **Ray S**, Rai V. K., Wadhwa M. A new method for the simultaneous chromatographic separation of iron and silicon for correlated stable isotopic analyses by MC-ICPMS. To be submitted to *Journal of Analytical Atomic Spectroscopy*.
- In review* Joshi, K B, **Ray S**, Ahmad T, Satyanarayanan M, Keshav Krishna A. Geochemistry of Neoproterozoic Shimla and Chail Group of metasediments, Himachal Outer Lesser Himalaya: Implications for provenance, tectonic setting and paleo-weathering conditions. Submitted to *Geological Journal*.
- 2020 Garvie L.A.J, Ma C, **Ray S**, Domanik, K, Wittmann A, Wadhwa M. Carletonmooreite: Ni₃Si, a new silicide from the Norton County aubrite. *American Mineralogist*. *In Press*.
- 2020 Marchi S, Durda D. D, Polanskey, C. A, Asphaug E, Bottke W. F, Elkins-Tanton L. T, Garvie L. A. J, **Ray S**, Williams D. A. (2020) Impact experiments in Fe-Ni ingots and iron meteorites: Implications for the NASA Psyche Mission. *JGR-Planets*, 125 (2), 1-19.
- 2015 **Ray S**, Joshi K.B, Sundarraman S, Joshi D, Ahmad T. (2015) Geochemical and petrogenetic study of Proterozoic Sewariya and Govindgarh Granitoids from South Delhi Fold Belt. *Current Science*, 109 (8), 1458-1465.
- 2014 Joshi, K B, **Ray S**, Joshi D, Ahmad T. Geochemistry of Pegmatites from South Delhi Fold Belt, Rajgarh, Ajmer District, Rajasthan. *Current Science*, 106 (12), 1725-1730.

INVITED TALK

- 2019 Understanding the Solar System through meteorites: University of Delhi, India.

PROFESSIONAL SERVICE

- 2019 Travel Grant Reviewer, ASU GPSA
- 2019-2021 Executive Secretary, NASA Review Panels

OUTREACH

- 2016-Present ASU Open Door, Open House, Homecoming Day, Earth and Space Exploration Day, Phoenix Comicon.

POPULAR ARTICLES

- [Women Astronauts? How ridiculous!](#), Arizona State University's Interplanetary Community in a Box Project.
- [Meteorites: Space Rocks](#), Arizona State University's Ask an Earth and Space Scientist.