

INDRA SEKHAR SEN

Personal Details

Postdoctoral Research Investigator Marine Chemistry & Geochemistry Woods Hole Oceanographic Institution Woods Hole, MA 02543-1541, USA	Tel (work) direct: 1-508-289-3339 Tel (mobile): 786-838-7103 E-mail address: isen@whoi.edu Web site: www.whoi.edu/people/isen
Nationality: Indian	Date of Birth: 5 th July 1981

Education

01.2006 – 07.2010 **Ph.D.**, Geochemistry, Florida International University, USA
Dissertation title: "Investigation of Mantle Dynamics from Platinum Group Elements and Rhenium-Osmium Isotope Systematics of Mantle Xenoliths from Oahu" <http://digitalcommons.fiu.edu/etd/232>; Course work GPA 3.87/4

12.2003 – 12.2005 **M.Sc.**, Applied Geology, Jadavpur University, India
Thesis title: "Geochemical characterization of a suite of Enderbitic rocks from Kondapalle, Eastern Ghats Belt, India. First Class Degree

12.2000 – 11.2003 **B.Sc.**, Geological Sciences, Jadavpur University, India
First Class Degree with Distinction in Physics and Mathematics

Positions

05.2012 – Postdoctoral Investigator, Department of Marine Chemistry and Geochemistry, **Woods Hole Oceanographic Institution, USA**

11.2010 – 04.2012 Postdoctoral Scholar, Department of Marine Chemistry and Geochemistry, **Woods Hole Oceanographic Institution, USA**

08.2009 – 11.2009 Internship, Hydrocarbon Systems Division, **Exxon Mobil Upstream Research Company, USA**

05.2009 – 07.2009 Internship, Exploration and Production Technology division, **BP America, Inc.'s Subsidiaries (BP), USA**

01.2006 – 12.2008 Teaching Assistantship, Oceanography Lab, **Florida International University, USA**

Research Interests

Mantle Geochemistry, Petroleum Geochemistry, Environmental Geochemistry, Paleoceanography and Human Contribution to Element Cycling: I work with element concentrations and their stable and radiogenic isotope ratios, and geochemically model large-scale processes on Earth. Some of my research interests include melt percolation and melt-rock reaction in the mantle, plume dynamics, mantle heterogeneity, hydrocarbon generation, migration, and accumulation in a petroleum system, development of new bioinorganic tracers for hydrocarbon exploration, human contribution on element cycling, source apportionment studies of atmospheric aerosols, paleozoic and mesozoic ocean chemistry and their relationship with Earth's evolution.

Honors & Award

- 2010: Postdoctoral Scholar Fellowship, Woods Hole Oceanographic Institution, USA
- 2010: Postdoctoral Fellowship, University of Alberta, Canada (declined)
- 2009: Doctoral Evidence Acquisition Fellowship, Florida International University, USA
- 2009: Sigma Xi Scientific Research Society
- 2008: Outstanding Teaching Assistant Award, FIU, USA

Teaching Experience

	Florida International University	n=number of student enrolled
• OCE 3014: Oceanography (Lab)	Fall 2008	n=37
• OCE 3014: Oceanography (Lab)	Summer 2008	n=04
• OCE 3014: Oceanography (Lab)	Spring 2008	n=38
• OCE 3014: Oceanography (Lab)	Fall 2007	n=38
• OCE 3014: Oceanography (Lab)	Summer 2007	n=03
• OCE 3014: Oceanography (Lab)	Spring 2007	n=40
• OCE 3014: Oceanography (Lab)	Fall 2006	n=40
• OCE 3014: Oceanography (Lab)	Summer 2006	n=09
• OCE 3014: Oceanography (Lab)	Spring 2006	n=17

Peer Reviewed Publication

Sen I.S. and Peucker-Ehrenbrink B. Cover Page for **Environmental Science and Technology Journal**, August 21, 2012, Volume 46, Issue 16, Pages 8523-9200 (<http://pubs.acs.org/toc/esthag/46/16>)

Sen I.S. and Peucker-Ehrenbrink B. Anthropogenic Disturbance of Element Cycles at the Earth's Surface. **Environmental Science and Technology** 46 (2012), 8601-8609 (<http://pubs.acs.org/doi/abs/10.1021/es301261x>)

Sen I.S., Bizimis M., Sen G., Huang S. A Radiogenic Os Component in the Oceanic Lithosphere? Constraints from Hawaiian Pyroxenite Xenoliths, **Geochimica et Cosmochimica Acta** 75 (2011), 4899-4916 (<http://www.sciencedirect.com/science/article/pii/S001670371100336X>)

Sen I.S, Bizimis M, Sen G. Geochemistry of Sulfides in Hawaiian Garnet Pyroxenite Xenoliths: Implication for Highly Siderophile Elements in the Oceanic Mantle, **Chemical Geology** 273 (2010), 180-192 (<http://www.sciencedirect.com/science/article/pii/S0009254110000641>)

Published Conference Proceedings

Sen I.S., Peucker-Ehrenbrink B., Geboy N. Anthropogenic osmium in airborne particles from Woods Hole, Massachusetts, submitted American Geophysical Union 2012

Sen I.S. and Peucker-Ehrenbrink B. Human impact on global element cycles, *Geochimica et Cosmochimica Acta* **2011**, 75(3), A1837

Sanchez-hernandez Y., Maurrasse, F.J., Sen I., Moreno-Bedmar J.A. The Cabó section, Sierra de Prada, south central Pyrénées, NE Spain: relation to Early Aptian oceanic oxygen conditions, *Abstract PP21C-1808* presented at 2011 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec.

Gionfriddo, C.; Bizimis, M.; Sen, I.; Salters, V., Chalcophile elements in peridotites as a proxy for sulfide mineralization during serpentinization. *Geochimica et Cosmochimica Acta* **2010**, 74, (12, Suppl 1,), A334

Sen I.S., Bizimis M., Huang S., Sen G. Origin of sulfides and pyroxenites in the Hawaiian mantle: Insights from PGE and Os isotopes, *Geochimica et Cosmochimica Acta* **2010**, 74(11), Suppl. 1, A933

Sen, I. S.; Luo, H.; Hall, J. S., Linking Migration with Fluid Mixing – A Case Study from Plutonio Field, Block 18, Angola, . *Technology Fair, British Petroleum, Houston, Tx, 2009*

Sen I.S., Bizimis M., Huang S., Sen G. Re-Os Isotope Systematics and PGE Abundances in Garnet Pyroxenite Xenoliths from Oahu, Hawaii: Implications on Melt-Peridotite Reaction in the Oceanic Mantle, *Eos Trans. AGU* **2008**, 89(53), Fall Meet. Suppl., Abstract V43B-2160

Sen I.S., Bizimis M., Sen G. Platinum Group Element Abundances in the Hawaiian Mantle: Constraints from in-Situ Sulfide and Bulk Rock Analyses of Garnet Pyroxenite Xenoliths from Oahu, *Joint Annual Meeting - Geological Society of America* **2008**, 141-13

Sen I.S., Sen G., Bizimis M. Sulfides in the Garnet Pyroxenite Xenoliths from Oahu, Hawaii, *Eos Trans. AGU* **2007**, 88(52), Fall Meet. Suppl, Abstract DI33A-1126

Research Funding

2011: Stable vanadium isotopes: A new biogeochemical marker and its application in oil exploration. American Chemical Society– Petroleum Research Funds, \$167,000 (*Nielsen and Sen*)

2011: Rhenium-osmium fractionation during hydrocarbon generation. Andre W. Mellon Foundation for Innovative Research, \$45,285, (*Peucker-Ehrenbrink and Sen*)

2009: Sigma Xi Student Research Grant Award (ID Number is: G2009100334) Sulfides in Hawaiian Mantle: Can it Explain the Elevated ^{186}Os - ^{187}Os Isotopes in Ocean Basalts? \$500 (*Sen*)

2009: Student travel grant, College of Arts and Science – Florida International University, \$2000 (*Sen*)

Talks & Colloquia

11 - 2011 Platinum Group Elements and osmium isotope geochemistry: A tale from Earth's mantle to the atmosphere, Indian Institute of Science Education and Research, Kolkata, India

- 11 - 2011 Platinum Group Elements and osmium isotope geochemistry: A tale from Earth's mantle to the atmosphere, Jadavpur University, Kolkata, India
- 01 - 2011 A radiogenic Os component in the oceanic lithosphere? Constraints from Hawaiian garnet pyroxenite xenoliths: Woods Hole Oceanographic Institution, Woods Hole, USA
- 05 - 2010 Investigation of Mantle Dynamics from Platinum Group Element and Rhenium- Osmium Isotope Systematics of Mantle Xenoliths from Oahu, Hawaii: Florida International University, USA
- 11 - 2009 Trace Element Determination in Lower Cretaceous Source Rock from Mikkelsen Bay, Eastern North Slope, Alaska: Geochemical Constrains on Environment of Deposition: Exxon Mobil Upstream Research Company, Houston, USA
- 07 - 2009 Linking Migration with Fluid Mixing – A Case Study from Plutonio Field, Block 18, Angola: BP, Houston, USA

Synergistic Activities

Reviewer for National Science Foundation, *Geochimica et Cosmochimica Acta*, WHOI-MIT joint program student postdoc mentoring committee

Collaborators

Michael Bizimis (University of South Carolina), Florentin Maurrasse (Florida International University), Nicholas Drenzek (Statoil), Mark Kurz (Woods Hole Oceanographic Institution), Uttam Bhui (Pandit Deendayal Petroelum University), Sune Nielsen (Woods Hole Oceanographic Institution), Nicholas Geboy (USGS), Michael Lewan (USGS)

Advisor

DOCTORAL ADVISOR:

Prof. Gautam Sen
Vice Provost for Research and Graduate Studies
American University of Sharjah, Sharjah, UAE

POSTDOCTORAL ADVISOR:

Dr. Bernhard Peucker-Ehrenbrink
Senior Scientist, Marine Chemistry and geochemistry
Woods Hole Oceanographic Institution, USA