

DAMANVEER S. GREWAL

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Last updated: 08/2026

EDUCATION

- 2016-21 PhD (Experimental Geochemistry) – Rice University, Houston, USA
2007-12 Integrated BSc + MSc (Applied Geology) – Indian Institute of Technology (IIT), Kharagpur, India

PROFESSIONAL APPOINTMENTS

- 2025- Assistant Professor, Department of Earth and Planetary Sciences, Yale University
2025- Assistant Curator of Mineralogy and Meteoritics, Peabody Museum, Yale University
2025 Research Scientist, Department of Earth and Planetary Sciences, Yale University
2024-25 Assistant Professor, School of Earth and Space Exploration, Arizona State University
2024-25 Assistant Professor, School of Molecular Sciences, Arizona State University
2022-23 Barr Foundation Postdoctoral Fellow, California Institute of Technology
2016-21 Research Fellow, Rice University
2014-16 Chemistry Teacher, Lakshya Forum for Competitions Pvt. Ltd., Patiala, India
2012-14 Chemistry Teacher, iQuest Eduventures, Patiala, India
2010 Research Intern, Christian-Albrechts-Universität Zu Kiel, Germany

FELLOWSHIPS AND AWARDS

- 2021 Barr Foundation Postdoctoral Fellowship, California Institute of Technology
2021 Alexander von Humboldt Postdoctoral Fellowship *declined*
2021 SESE Exploration Postdoctoral Fellowship, Arizona State University *declined*
2022 Outstanding Student Presentation Award, American Geophysical Union 2021
2021 Outstanding Graduate Student Award, Rice University
2019-21 Future Investigators in NASA Earth and Space Science and Technology (FINESST)
2019 Lodieska Stockbridge Vaughn Fellowship, Rice University
2019 Torkild Rieber Award in Geology, Rice University
2007-12 Innovation in Science Pursuit for Inspired Research, Department of Science and Technology, India

PEER-REVIEWED ARTICLES

(#designates supervised research scientist, postdoc, graduate, undergraduate, and high school student)

In review/revision:

37. **Grewal, D.S.**, Zhang, Z. (202x) Iron meteorites and the first million years of the solar protoplanetary disk.
36. Zhang, Z., **Grewal, D.S.**, Nie, N.X. (202x) Element-dependent kinetic controls on volatile isotopic fractionation during the formation of carbonaceous chondrite chondrules.
35. Moussallam, Y., **Grewal, D.S.**, Georgeais, G., Lee, H., Rose-Koga E.F., Lerner, A., Holman, B., Wallace, P., Gauer-Pasqualon, N., Anderson, O., Jackson, M. (202x) Heavy carbon in the core?
34. [#]Nie, N.X., ^{\$}**Grewal, D.S.**, Zhang, Z.J. (202x) Isotope fractionation and mass fractionation laws of Fe and Ni during evaporation. (^{\$}Equally contributing authors)
33. [#]Thakur, H., Rai, V., Zhang, Z., Nie, N.X., Asael, D., Planavsky, N.J., Wadhwa, M., **Grewal, D.S.** (202x) Unfractionated silicon in chondrules from an impact plume that produced extreme metal isotope signatures.
32. [#]Bhattacharjee, S., Thakur, H., Manilal, V., Kita, N., Guan, Y., Hammett, M., Wostbrock, J., Wittmann, A., Kitajima, K., Garvie, L., **Grewal, D.S.** (202x) Prolonged redox evolution drives carbonate precipitation in CI chondrites.

DAMANVEER S. GREWAL

31. [#]*Bhattacharjee, S.*, **Grewal, D.S.**, Blättler, C.L., Zaki, A., Guan, Y., Ma, C., Swindle, C.R., Sliwinski, M.G., Asimow, P.D., Valley, J.W., Eiler, J.M., Present, T.M. (202x) Isotopic evidence that advanced silicate weathering fed a crustal carbonate sink on early Mars.

Published/Accepted:

30. **Grewal, D.S.**, Zhang, Z., Drazkowska, J. (2026) Aerodynamic sorting governed planetesimal compositions from the onset of solar system formation. *Nature Astronomy*
29. **Grewal, D.S.**, Zhang, Z. (2026) Beyond the Urey-Craig diagram: A ternary Fe framework for aqueous redox evolution of early solar system planetesimals. *Geochimica et Cosmochimica Acta*
28. ^{\$}Kuwahara, H., ^{\$}**Grewal, D.S.**, [#]*Tsuno, K.* (2026) Constraints on magma self-oxidation in angrites and the role of parent-body size. *The Planetary Science Journal* 7 201 doi: [10.3847/PSJ/ae8ba4](https://doi.org/10.3847/PSJ/ae8ba4) (^{\$}[Equally contributing authors](#))
27. [#]*Tsuno, K.*, Kuwahara, H., [#]*Manilal, V.*, Wittman, A., Leinenweber, K., Irifune, T., **Grewal, D.S.** (2026) Experimental evidence for metallic melt trapping in the deep Martian mantle: Implications for inefficient melt segregation and highly siderophile element retention. *Earth and Planetary Science Letters* **692**: 120246. doi: [10.1016/j.epsl.2026.120246](https://doi.org/10.1016/j.epsl.2026.120246)
26. [#]*Bhattacharjee, S.*, Wostbrock, J., Blattler, C.L., Present, T., Sliwinski, M.J., Guan, Y., **Grewal, D.S.** (2026) Accurate *in situ* C-Mg-Ca isotope ratio analysis in carbonates using SIMS. *Journal of Analytical Atomic Spectrometry* doi: [10.1039/d6ja00136j](https://doi.org/10.1039/d6ja00136j)
25. [#]*Manilal, V.*, [#]*Tsuno, K.*, Kuwahara, H., Wittmann, A., Pommier, A., Till, C., **Grewal, D.S.** (2026) Percolative core formation in oxidized planetesimals - I: experiments on melt migration in olivine aggregates. *Geochimica et Cosmochimica Acta* **427**: 123-210. doi: [10.1016/j.gca.2026.06.018](https://doi.org/10.1016/j.gca.2026.06.018)
24. **Grewal, D.S.**, Nie, N.X., Zhang, Z.J., Luais, B., Zhang, Z., Ochoa, A.V., Ni, P. (2026) K, Rb, Ge and Cu isotopes in Oued Chebeika 002 compared to CI chondrites, Ryugu, and Benu. *Geochemical Perspective Letters* **40**: 1-6 doi: [10.7185/geochemlet.2618](https://doi.org/10.7185/geochemlet.2618)
23. Zhang, Z., **Grewal, D.S.** (2026) A re-assessment of moderately volatile elements in the non-matrix component of carbonaceous chondrites. *Icarus* **452**: 117049 doi: [10.1016/j.icarus.2026.117049](https://doi.org/10.1016/j.icarus.2026.117049)
22. **Grewal, D.S.**, Zhang, Z., [#]*Manilal, V.*, Kruijer, T.S., Bottke W.F., Stewart S.T. (2025) Protracted Core Formation and Impact Disruptions Shaped the Earliest Outer Solar System Planetesimals. *Science Advances* **11**: 40 doi: [10.1126/sciadv.adw1668](https://doi.org/10.1126/sciadv.adw1668)
21. **Grewal, D.S.**, Mukhopadhyay, S. (2025) Using carbon isotopes to trace the origin of volatiles on Earth and Mars. *Geochimica et Cosmochimica Acta* **408**: 12-27. doi: [10.1016/j.gca.2025.09.014](https://doi.org/10.1016/j.gca.2025.09.014)
20. **Grewal, D.S.**, Bhattacharjee, S., Zhang, B., Nie, N.X., Miyazaki, Y. (2025) Enrichment of moderately volatile elements in first-generation planetesimals of the inner solar system. *Science Advances* **11**: 6 doi: [10.1126/sciadv.adq7848](https://doi.org/10.1126/sciadv.adq7848)
19. **Grewal, D.S.**, [#]*Manilal, V.* (2025) Implications of differentiated late accretion for the volatile inventory in the bulk silicate Earth. *The Planetary Science Journal* **6** 13 doi: [10.3847/PSJ/ad9606](https://doi.org/10.3847/PSJ/ad9606)
18. **Grewal, D.S.**, Bhattacharjee, S., [#]*Mardaru, G.-D.*, Asimow, P.D. (2025) Tracing the origin of volatiles on Earth using nitrogen isotope ratios in iron meteorites. *Geochimica et Cosmochimica Acta* **388**: 34-47 doi: [10.1016/j.gca.2024.11.011](https://doi.org/10.1016/j.gca.2024.11.011)
17. [#]*Tsuno, K.*, **Grewal, D.S.**, Xu, V., Leinbach, L., Leinenweber, K., Wittmann, A., Shim, S.-H. (2024) The effect of nitrogen on the dihedral angle between Fe-Ni melt and ringwoodite: Implications for the nitrogen deficit in the bulk silicate Earth. *Geophysical Research Letters* **51**: 8 e2024GL109584 doi: [10.1029/2024GL109584](https://doi.org/10.1029/2024GL109584)
16. **Grewal, D.S.**, Miyazaki, Y., Nie, N.X. (2024) Contribution of the Moon-forming impactor to the volatile inventory in the bulk silicate Earth. *The Planetary Science Journal* **5** 181 doi: [10.3847/PSJ/ad5b5d](https://doi.org/10.3847/PSJ/ad5b5d)
15. **Grewal, D.S.**, Nie, N.X., Zhang, B., Izidoro, A., Asimow, P.D. (2024) Accretion of the earliest inner solar system planetesimals beyond the water snowline. *Nature Astronomy* **8**: 290–297 doi: [10.1038/s41550-023-02172-w](https://doi.org/10.1038/s41550-023-02172-w)

DAMANVEER S. GREWAL

14. Suer, T.-A., Jackson, C., **Grewal, D.S.**, Dalou, C., Lichtenberg, T. (2023) The Distribution of highly volatile elements during rocky planet formation. *Frontiers in Earth Science* **11** doi: [10.3389/feart.2023.1159412](https://doi.org/10.3389/feart.2023.1159412)
13. **Grewal, D.S.**, Asimow, P.D. (2023) Origin of the superchondritic carbon/nitrogen ratio of the bulk silicate Earth – an outlook from iron meteorites. *Geochimica et Cosmochimica Acta* **344**: 146-159. doi: [10.1016/j.gca.2023.01.012](https://doi.org/10.1016/j.gca.2023.01.012)
12. **Grewal, D.S.**, Sun, T., [#]*Aithala, S.*, [#]*Hough, T.*, Dasgupta, R., Yeung, L., Schauble, E. (2022) Limited nitrogen isotope fractionation during core-mantle differentiation in rocky protoplanets and planets. *Geochimica et Cosmochimica Acta* **338**: 347-364. doi: [10.1016/j.gca.2022.10.025](https://doi.org/10.1016/j.gca.2022.10.025)
11. **Grewal, D.S.**, Seales, J., Dasgupta, R. (2022) Internal or external magma oceans in the earliest protoplanets – perspectives from nitrogen and carbon fractionation. *Earth and Planetary Science Letters* **598**: 117847. doi: [10.1016/j.epsl.2022.117847](https://doi.org/10.1016/j.epsl.2022.117847)
10. **Grewal, D.S.** (2022) Origin of nitrogen isotopic variations in the rocky bodies of the Solar System. *The Astrophysical Journal* **937**: 123. doi: [10.3847/1538-4357/ac8eb4](https://doi.org/10.3847/1538-4357/ac8eb4)
9. **Grewal, D.S.**, Dasgupta, R., [#]*Aithala, S.* (2021) The effect of carbon concentration on its core-mantle partitioning behavior in inner Solar System rocky bodies. *Earth and Planetary Science Letters* **571**: 117090. doi: [10.1016/j.epsl.2021.117090](https://doi.org/10.1016/j.epsl.2021.117090)
8. **Grewal, D.S.**, Dasgupta, R., [#]*Hough, T.*, [#]*Farnell, A.* (2021) Rates of protoplanetary accretion and differentiation set nitrogen budget of rocky planets. *Nature Geoscience* **14**: 369-376. doi: [10.1038/s41561-021-00733-0](https://doi.org/10.1038/s41561-021-00733-0)
7. **Grewal, D.S.**, Dasgupta, R., Marty, B. (2021) A very early origin of nitrogen in inner Solar System protoplanets. *Nature Astronomy* **5**: 356-364. doi: [10.1038/s41550-020-01283-y](https://doi.org/10.1038/s41550-020-01283-y)
6. **Grewal, D.S.**, Dasgupta, R., [#]*Farnell, A.* (2020) The speciation of carbon, nitrogen, and water in magma oceans and its effect on volatile partitioning between major reservoirs of the Solar System rocky bodies. *Geochimica et Cosmochimica Acta* **280**: 281-301. doi: [10.1016/j.gca.2020.04.023](https://doi.org/10.1016/j.gca.2020.04.023)
5. Dasgupta, R., **Grewal, D.S.** (2019) Origin and Early Differentiation of Carbon and Associated Life-Essential Volatile Elements on Earth. In Orcutt, B., Daniel, I., Dasgupta, R. (Eds.) *Deep Carbon: Past to Present* (Cambridge University Press). 4-39. doi: [10.1017/9781108677950.002](https://doi.org/10.1017/9781108677950.002)
4. Hakim, K., Spaargaren, R., **Grewal D.S.**, Rohrbach A., Brendt J., Dominik, C., van Westrenen, W. (2019) A laboratory approach to probe the mineralogy of carbon-rich rocky exoplanets. *Astrobiology* **9**: Number 7. doi: [10.1089/ast.2018.1930](https://doi.org/10.1089/ast.2018.1930)
3. **Grewal, D.S.**, Dasgupta, R., [#]*Holmes, A.K.*, Costin, G., Li Y., Tsuno, K. (2019) The fate of nitrogen during core-mantle separation on Earth. *Geochimica et Cosmochimica Acta* **251**: 87-115. doi: [10.1016/j.gca.2019.02.009](https://doi.org/10.1016/j.gca.2019.02.009)
2. **Grewal, D.S.**, Dasgupta, R., Sun, C., Tsuno K., Costin, G. (2019) Delivery of Carbon, Nitrogen and Sulfur to the Silicate Earth. *Science Advances* **5**: 1 eaau3669. doi: [10.1126/sciadv.aau3669](https://doi.org/10.1126/sciadv.aau3669)
1. Tsuno, K., **Grewal, D.S.**, Dasgupta, R. (2018) Core-mantle fractionation of carbon in Earth and Mars: The effects of sulfur. *Geochimica et Cosmochimica Acta* **238**: 477-495. doi: [10.1016/j.gca.2018.07.010](https://doi.org/10.1016/j.gca.2018.07.010)

INVITED SEMINARS AND COLLOQUIA

47. Gordon Research Conference – Origins of Solar Systems (06/2027)
47. Origin of Earth's bulk composition, NYC (10/2026) **Invited**
46. ExPet 26, Earth and Planets Laboratory, Carnegie Science (10/2026) **Keynote**
45. International Space Science Institute, Beijing (China) (10/2026) **Invited**
44. Department of Earth and Planetary Sciences, Stanford University (05/2026)
43. StarPlan, Globe Institute, University of Copenhagen (Denmark) (05/2026)
42. Meteorites and the Early Solar System III Workshop, Copenhagen (Denmark) (05/2026) **Invited**
41. Department of Earth Science, University of Cambridge (UK) (05/2026)

DAMANVEER S. GREWAL

40. SUERC Center for the Isotope Sciences, University of Glasgow (UK) (05/2026)
39. Department of Earth Science, University of Oxford (UK) (05/2026)
38. Inner Solar System Workshop, Rice University (05/2026) **Keynote** [*declined due to schedule conflict*]
37. Geoclub Seminar, California Institute of Technology (11/2022) [*declined due to schedule conflict*]
36. Department of Earth and Planetary Sciences, Yale University (04/2026)
35. NASA Decadal Astrobiology Research and Exploration Strategy Webinar (03/2026) **Invited**
34. Rocky Worlds 4 Conference, Groningen (Netherlands) (01/2026) **Keynote**
33. Department of Earth and Planetary Sciences, American Museum of Natural History (11/2025)
32. Earth and Planets Laboratory, Carnegie Science (10/2025)
31. Lamont-Doherty Earth Observatory, Columbia University (10/2025)
30. Astrobiology Hour, Pennsylvania State University (09/2025)
29. Gordon Research Conference – Interior of the Earth (06/2025)
28. Experimental Mineralogy, Petrology, Geochemistry (EMPG) meeting (France) (06/2025) **Invited** [*declined due to visa*]
27. FORCE Seminar Series (05/2025)
26. Buseck Center for Meteorite Studies, Arizona State University (04/2025)
25. Rocky World Discussions, Virtual Seminar Series (05/2024)
24. Department of Earth and Planetary Sciences, Yale University (03/2024)
23. School of Earth and Space Exploration, Arizona State University (02/2024)
22. FORCE Winter Workshop, Arizona State University (01/2024)
21. American Geophysical Union Fall Meeting, Washington DC (12/2023)
20. Goldschmidt Conference, Lyon, France (07/2023)
19. School of Earth Sciences, Zhejiang University, China (06/2023)
18. Department of Earth and Planetary Sciences, Harvard University (03/2023)
17. Department of Earth and Atmospheric Sciences, University of Houston (02/2023)
16. School of Molecular Sciences, Arizona State University (01/2023)
15. Department of the Geophysical Sciences, University of Chicago (01/2023)
14. Department of Earth and Environmental Science at the University of Minnesota - Twin Cities (12/2022)
13. Division of Geological and Planetary Sciences, California Institute of Technology (11/2022)
12. Gordon Research Conference - Deep Carbon Science (06/2022) [Cancelled due to COVID-19]
11. Bayerisches Geoinstitut (BGI), University of Bayreuth, Germany (06/2022)
10. Department of Earth, Planetary and Space Science, University of California, Los Angeles (03/2022)
9. Department of the Geophysical Sciences, University of Chicago (01/2022)
8. School of Earth and Planetary Sciences, National Institute of Science Education and Research, India (01/2022)
7. Geological Society of India, Regional Center – Indian Institute of Technology (IIT) Kharagpur (11/2021)
6. Prebiotic Chemistry and Early Earth Environments Consortium Seminar Series (08/2021)
5. Goldschmidt Conference, Virtual (07/2021)
4. Geodynamics Research Center, Ehime University (06/2021)

DAMANVEER S. GREWAL

3. Geochemistry group, University of Cambridge, UK (06/2021)
2. Le Centre de Recherches Pétrographiques et Géochimiques (CRPG) Nancy, France (04/2021)
1. Biogeochemistry group, University of California, Riverside (04/2020)

PRESENTATIONS AT SCIENTIFIC MEETINGS AND CONFERENCES

(* designates presenting author, # designates supervised *research scientist, postdoc, graduate, undergraduate, and high school students*)

48. ***Grewal, D.S.**, Zhang, Z., #Manilal, V., Kruijer, T.S., Bottke W.F., Stewart S.T. (2025) Protracted Core Formation and Impact Disruptions Shaped the Earliest Outer Solar System Planetesimals. *Lunar and Planetary Science Conference* (03/2026) [ORAL]
47. *Zhang, Z., **Grewal, D.S.** (202x) A re-assessment of moderately volatile elements in the non-matrix component of carbonaceous chondrites. *Lunar and Planetary Science Conference* (03/2026) [POSTER]
46. *Guan, Y., Bhattacharjee, S., **Grewal, D.S.** ⁵³Mn-⁵³Cr systematics of carbonates from Oued Chebeika 002 and Tarda carbonaceous chondrites. *Annual Meetings of the Meteoritical Society* (07/2025)
45. ***Grewal, D.S.**, Bhattacharjee, S., Mardaru, G.-D., Asimow, P.D. Tracing the origin of volatiles on Earth using nitrogen isotope ratios in iron meteorites. *Lunar and Planetary Science Conference* (03/2025) [ORAL]
44. ***Grewal, D.S.**, Bhattacharjee, S., Zhang, B., Nie, N.X., Miyazaki, Y. Enrichment of moderately volatile elements in first-generation planetesimals of the inner solar system. *Lunar and Planetary Science Conference* (03/2025) [POSTER]
43. ***Grewal, D.S.**, Miyazaki, Y., Nie, N.X. (2024) Contribution of the Moon-forming impactor to the volatile inventory in the bulk silicate Earth. *American Geophysical Union Fall Meeting* (12/2024) [POSTER]
42. ***Grewal, D.S.**, Nie, N.X., Zhang, B., Izidoro, A., Asimow, P.D. Accretion of the earliest inner solar system planetesimals beyond the water snowline. *American Geophysical Union Fall Meeting* (12/2024) [POSTER]
41. ***Grewal, D.S.**, Nie, N.X., Zhang, B., Izidoro, A., Asimow, P.D. Accretion of the earliest inner solar system planetesimals beyond the water snowline. *Goldschmidt Conference* (08/2024) [ORAL]
40. *Tsuno K., **Grewal, D.S.**, Xu, V., Leinbach, L., Leinenweber, K., Wittmann, A., Shim, S.-H. The effect of nitrogen on the dihedral angle between Fe-Ni melt and ringwoodite: Implications for the nitrogen deficit in the bulk silicate Earth. *Goldschmidt Conference* (08/2024)
39. *Bhattacharjee, S., Present, T., Blättler, C., **Grewal, D.S.**, Guan, Y., Ma, C., Swindle, C., Sliwinski, M.D., Asimow, P.D., Valley, J.W., Eiler, J. Mg isotope evidence that magnesite in Martian meteorite ALH84001 precipitated as hydromagnesite. *Goldschmidt Conference* (08/2024)
38. ***Grewal, D.S.**, Nie, N.X., Zhang, B., Izidoro, A., Asimow, P.D. Accretion of the earliest inner solar system planetesimals beyond the water snowline. *Lunar and Planetary Science Conference* (03/2024) [ORAL]
37. ***Grewal, D.S.** Origin of nitrogen and carbon in the rocky bodies of the Solar System – an outlook from iron meteorites. *2nd FORCE Winter Workshop, Arizona State University* (01/2024) [ORAL] **Invited**
36. ***Grewal, D.S.**, Asimow, P.D. Origin of nitrogen and carbon in the rocky bodies of the Solar System – an outlook from iron meteorites. *American Geophysical Union Fall Meeting* (12/2023) [ORAL] **Invited**
35. *Tsuno K., **Grewal, D.S.**, Xu, V., Leinbach, L., Leinenweber, K., Wittmann, A., Shim, S.-H. The effect of nitrogen on the dihedral angle between Fe-Ni melt and ringwoodite: Implications for the nitrogen deficit in the bulk silicate Earth. *American Geophysical Union Fall Meeting* (12/2023)
34. ***Grewal, D.S.**, Asimow, P.D. Origin of nitrogen and carbon in the rocky bodies of the Solar System – an outlook from iron meteorites. *Annual Meetings of the Meteoritical Society* (08/2023) [ORAL]
33. ***Grewal, D.S.**, Asimow, P.D. Origin of nitrogen and carbon in the rocky bodies of the Solar System – an outlook from iron meteorites. *Goldschmidt Conference* (07/2023) [ORAL] **Invited**
32. *Suer, T.-A., Jackson, C., **Grewal, D.S.**, Dalou, C., Lichtenberg, T. The distribution of highly volatile elements during rocky planet formation. *Goldschmidt Conference* (07/2023)

DAMANVEER S. GREWAL

31. ***Grewal, D.S.**, Dasgupta, R., #Aithala, S. The effect of carbon concentration on its core-mantle partitioning behavior in inner Solar System rocky bodies. *American Geophysical Union Fall Meeting* (12/2021) [ORAL]
30. ***Grewal, D.S.**, Dasgupta, R., #Hough, T., #Farnell, A. Rates of protoplanetary accretion and differentiation set nitrogen budget of rocky planets. *American Geophysical Union Fall Meeting* (12/2021) [ORAL]
29. ***Grewal, D.S.**, Dasgupta, R., Marty, B. A very early origin of nitrogen in inner Solar System protoplanets. *Goldschmidt Conference* (07/2021) [ORAL] **Invited**
28. ***Dasgupta, R., Grewal, D.S.**, #Hough, T., #Farnell, A. (2021) Nitrogen depletion in the inner Solar System planets linked to the rates of protoplanetary accretion and differentiation. *Goldschmidt Conference* (07/2021)
27. ***Grewal, D.S.**, Dasgupta, R., Marty, B. A very early origin of nitrogen in inner Solar System protoplanets. *Lunar and Planetary Science Conference* (07/2021) [ORAL]
26. ***Grewal, D.S.**, Dasgupta, R., Marty, B. A very early origin of nitrogen in inner Solar System protoplanets. *Habitable Worlds Workshop* (02/2021) [POSTER]
25. ***Grewal, D.S.**, Dasgupta, R. Magma Ocean differentiation regime in the earliest formed rocky bodies - Internal or External? *Habitable Worlds Workshop* (02/2021) [POSTER]
24. ***Grewal, D.S.**, Dasgupta, R., #Aithala, S. The effect of bulk carbon on its core-mantle partitioning behavior. *American Geophysical Union Fall Meeting* (12/2020) [ORAL]
23. Dasgupta, R., ***Grewal, D.S.** Magma Ocean differentiation regime in the earliest formed rocky bodies inferred from volatile abundances in iron meteorites. *American Geophysical Union Fall Meeting* (12/2020)
22. ***Grewal, D.S.**, Dasgupta, R. The Effect of Differentiation via Internal Versus External Magma Oceans on the Carbon and Nitrogen Budgets of Rocky Planets. *Goldschmidt Conference* (06/2020) [ORAL]
21. ***Grewal, D.S.**, #Hough, T., Dasgupta, R., #Aithala, S. Protoplanetary Differentiation is the Primary Cause of Nitrogen Depletion in Bulk Silicate Reservoirs of Rocky Bodies. *Lunar and Planetary Science Conference* (03/2020) [ORAL] *Cancelled due to COVID-19*
20. ***Grewal, D.S.**, Dasgupta, R., #Hough, T. The core-mantle partitioning of carbon and nitrogen in carbon-undersaturated ultramafic systems. *American Geophysical Union Fall Meeting* (12/2019) [POSTER]
19. ***Grewal, D.S.**, #Hough, T., Dasgupta, R. The core-mantle partitioning of nitrogen in carbon-undersaturated ultramafic Systems. *Goldschmidt Conference* (08/2019) [ORAL]
18. ***Dasgupta, R., Grewal, D.S.**, Tsuno K. Control of Accretion and Early Differentiation Process on the Diversity of Volatile Inventory of Rocky Solar System Objects. *Goldschmidt Conference* (08/2019)
17. ***Dasgupta, R., Grewal, D.S.**, Tsuno K. Origin of Life-essential Volatile Elements in Rocky Planets – Insights from Accretion and Early Differentiation of Inner Solar System Objects. *Astrobiology Science Conference* (06/2019)
16. ***Grewal, D.S.**, Dasgupta, R., #Holmes, A.K., Costin, G, Li Y., Tsuno K. The fate of nitrogen during core-mantle separation. *Lunar and Planetary Science Conference* (03/2019) [ORAL]
15. ***Grewal, D.S.**, Dasgupta, R., #Farnell, A., #Hough, T., Costin, G, Tsuno K, Li Y., Holmes, A.K. The compositions of the early atmospheres formed by magma ocean degassing. *Lunar and Planetary Science Conference* (03/2019) [POSTER]
14. Dasgupta, R., ***Grewal, D.S.**, Sun, C., Tsuno, K., Costin, G. The Origin of Earth's Major Volatiles via Accretion of a Large Planetary Embryo. *Lunar and Planetary Science Conference* (03/2019)
13. ***Grewal, D.S.**, Dasgupta, R., #Farnell, A., #Hough, T., Costin, G, Tsuno K, Li Y., Holmes, A.K. Evolution of the C/N ratio of the Bulk Silicate Earth as a probe to understand the roles of volatile accretion and differentiation. *American Geophysical Union Fall Meeting* (12/2018) [POSTER]
12. ***Dasgupta, R., Grewal, D.S.** Origin and Early Differentiation of Carbon and Associated Life-Essential Volatile Elements on Earth. *American Geophysical Union Fall Meeting* (12/2018)
11. ***Grewal, D.S.**, Dasgupta, R., #Holmes, A.K., Costin, G, Li Y., Tsuno K. The fate of nitrogen during core-mantle separation on Earth. *Goldschmidt Conference* (08/2018) [ORAL]

DAMANVEER S. GREWAL

10. ***Grewal, D.S.**, Dasgupta, R., Costin, G., Tsuno K., Li Y., [#]Holmes, A.K. Evolution of the C/N ratio of the Bulk Silicate Earth as a probe to understand the roles of volatile accretion and differentiation. *Gordon Research Conference* (06/2018) [POSTER]
9. ***Grewal, D.S.**, Dasgupta, R., Sun, C., Tsuno K., Costin, G. Delivery of Carbon, Nitrogen and Sulfur to the Silicate Earth. *Carbon in the Solar System Workshop* (04/2018) [ORAL]
8. ***Grewal, D.S.**, Dasgupta, R. The origin of volatiles on Earth. *Pre-IRESS Workshop, Rice University* (02/2018) [ORAL]
7. ***Grewal, D.S.**, Dasgupta, R., Sun, C., Tsuno, K. Simultaneous alloy-silicate fractionation of carbon, nitrogen, and sulfur at high pressures and temperatures: Implications for establishing the volatile budget of the Earth. *American Geophysical Union Fall Meeting* (12/2017) [ORAL]
6. ***Tsuno, K.**, Dasgupta, R., **Grewal, D.S.** The effects of sulfur on carbon partitioning and solubility in high pressure-temperature alloy-silicate systems: Implications for fractionation of carbon and sulfur during accretion and core formation of Earth and Mars. *American Geophysical Union Fall Meeting* (12/2017)
5. ***Grewal, D.S.**, Dasgupta, R., Sun, C., Tsuno, K., Costin, G. Delivery of Carbon, Nitrogen and Sulfur to the Silicate Earth by a Giant Impact. *Deep Carbon Observatory Extreme Physics and Chemistry Workshop, Arizona State University* (11/2017) [ORAL]
4. ***Tsuno, K.**, Dasgupta, R., **Grewal, D.S.** The effects of sulfur on carbon partitioning and solubility in high pressure-temperature alloy-silicate systems. *Deep Carbon Observatory Extreme Physics and Chemistry Workshop, Arizona State University* (11/2017)
3. ***Grewal, D.S.**, Dasgupta, R., Sun, C., Tsuno, K., Costin, G. Delivery of Carbon, Nitrogen and Sulfur to the Silicate Earth by a Giant Impact. *Graduate Interdisciplinary Earth Science Symposia, Rice University* (11/2017) [ORAL]
2. ***Grewal, D.S.**, Dasgupta, R., Tsuno, K. Simultaneous alloy-silicate fractionation of carbon, nitrogen, and sulfur at high pressures and temperatures: Implications for establishing the volatile budget of the Earth. *Gordon Research Conference* (06/2017). [POSTER]
1. ***Tsuno, K.**, Dasgupta, R., **Grewal, D.S.** The effects of sulfur on carbon partitioning and solubility in high pressure-temperature alloy-silicate systems. *Gordon Research Conference* (06/2017).

FUNDING (Total = \$1,270,464)

- | | |
|---------|--|
| 2026-29 | NASA Solar System Science – Sole-PI “Decoding aqueous alteration in Bennu, Ryugu, and CI/C2 chondrites through grain-scale C-O-Mg carbonate isotopes” (\$744,774) |
| 2024 | Travel grant Planet Formation for Planet Formation Workshop by Munich Institute of Astro- and Particle Physics (\$2000) <i>declined</i> |
| 2023 | Meteoritical Society Travel Award (\$640) |
| 2022 | Caltech Center for Comparative Planetary Evolution Research Grant (\$8,800) |
| 2022 | Caltech Center for Comparative Planetary Evolution and the Caltech Microanalysis Center Research Grant (\$21,000) |
| 2022 | Travel grant Planet Formation for Planet Formation Workshop by Munich Institute of Astro- and Particle Physics <i>declined</i> |
| 2021 | Barr Foundation Postdoctoral Fellowship, California Institute of Technology (\$136,500) |
| 2021 | Alexander von Humboldt Postdoctoral Fellowship (€73,680) <i>declined</i> |
| 2021 | SESE Exploration Postdoctoral Fellowship, Arizona State University (\$247,000) <i>declined</i> |
| 2021 | Goldschmidt Registration Grant |
| 2020 | Travel grant Planet Formation for Planet Formation Workshop by Munich Institute of Astro- and Particle Physics <i>cancelled due to COVID-19</i> |
| 2019-21 | Future Investigators in NASA Earth and Space Science and Technology (FINESST) (\$90,000) |
| 2019 | Lodieska Stockbridge Vaughn Fellowship, Rice University (\$16,750) |
| 2019 | Goldschmidt Travel Grant (\$1,000) |

DAMANVEER S. GREWAL

2018 Goldschmidt Travel Grant (\$2,000)

TEACHING

2026F Co-Instructor for EPS 1500 – Our Solar System, Yale
2026F Instructor for EPS 7440 – Seminar in Mantle and Core Processes, Yale
2025F Instructor for EPS 5320 – Cosmochemistry, Yale
2025F Co-Instructor for EPS 7440 – Seminar in Mantle and Core Processes, Yale
2025F Co-Instructor for EPS 6200 – Essentials of Earth and Planetary Sciences, Yale
2025S Guest instructor for GLG 485 – Meteorites and Cosmochemistry, ASU
2024F Instructor for CHM 501 – Communication Skills in Chemistry and Biochemistry, ASU
2024S Instructor for CHM 494/598-GLG 494/598 – Chemistry of Planet Formation and Evolution, ASU
2024 Guest instructor for GLG 598 – Biogeochemical Evolution of Earth, ASU
2022 Guest instructor for Ge 141 – Isotope Cosmochemistry, California Institute of Technology
2020 Instructor for ESCI 114 – Discoveries in Earth, Environmental and Planetary Sciences, Rice University
2019 Instructor for ESCI 114 – Discoveries in Earth, Environmental and Planetary Sciences, Rice University
2018 Guest instructor for ESCI 412/612 – Advanced Petrology, Rice University
2012-16 Lectures on undergraduate level Physical, Organic and Inorganic Chemistry to more than 800 students for engineering, medical and science university entrance examinations
2012-16 Lectures on Physical, Organic, and Inorganic Chemistry for International and National Chemistry Olympiads

MENTORING

Current graduate advisees:

2026- Pooneh Zehtabfard (PhD)
2024- Harsh Thakur (PhD)
2024- Varun Manilal (PhD)

Current Postdoctoral advisees:

2025- Surjyendu Bhattacharjee

Research Scientists:

2026- Kyusei Tsuno

Current undergraduate advisees:

2026 Macie Liepe (Yale University)
2026 Tengxu Wang (Arizona State University)

Past undergraduate advisees:

2024-25 Logan Laferriere (Arizona State University)
2023 Gabriel-Darius Mardaru (Harvard University)
2023 Mithil Rajput (Indian Institute of Technology, Kharagpur)
2022 Paras Choudhary (Indian Institute of Technology, Kharagpur)
2019-20 Sanath Aithala (University of Houston)
2019 Naod Araya (Rice University)
2018-19 Taylor Hough (Brown University)
2016-18 Alexandra K. Holmes (Rice University)

Past high school advisees:

2019-20 Melinda Zhou (Mayde Creek High School, Katy)
2019-20 Sanath Aithala (University of Houston)
2019 Ryan Anselm (Clemens High School, Sugarland)
2018-19 Alexandra Farnell (St. John's School, Houston)

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2017 Rohil P. Bathija (Awty International School, Houston)

SELECTED POPULAR MEDIA COVERAGE

- The *Science Advances* (2025) article was covered by [Earth](#), [Scienmag](#), [AlphaGalileo](#), [Mirage](#), and [Tiisys](#), amongst other global news outlets.
- The *Science Advances* (2025) article was covered by [Phys.org](#), [ScienceDaily](#), [Bioengineer.org](#), [EuropaPress](#), [Discover](#), [Earth](#), [OkDiario](#), [NotiAmerica](#), [CanalTech](#), [TheDebrief](#), and [NoticiasdeLaTierra](#) amongst other global news outlets.
- The *Nature Astronomy* (2024) article was covered by [Al Jazeera](#), [Phys.org](#), [Science Daily](#), [Astrobiology](#), [Earth](#), [MSN](#), [My Droll](#), and [Today Headline](#), amongst other global news outlets.
- The *Nature Geoscience* (2021) article was covered by [Universe Today](#), [CosmoQuest](#), [Science Daily](#), [Centauri Dreams](#), [Space Daily](#), [Newsweek](#), [Phys.org](#), and [Scienmag](#), amongst other global news outlets.
- The *Nature Astronomy* (2021) article was covered by [Many Worlds](#), [EOS](#), [TechExplorist](#), [Medium](#), [Science Daily](#), [Phys.org](#), [Sciencenewsnet](#), and [SciTechDaily](#), amongst other global news outlets.
- The *Science Advances* (2019) article had one of the highest altimetric score of research published in geochemistry/planetary science ([1435](#); top 0.02% of all research papers ever tracked) with press release being covered by 161 news outlets across the globe including [CNN](#), [BBC](#), [The Guardian](#), [Daily Mail](#), [Spain's News](#), [Times of India](#), [China Daily](#), [Phys.org](#), [Universe Today](#), [Space Daily](#), [Sky News](#), [Space.com](#), [Yahoo News](#), [USA Today](#), [Vice](#), [Science Daily](#), [Gizmodo](#), [Sky & Telescope](#), [The Wire](#), and [Inverse](#), amongst other global news outlets.

SCIENCE ARTICLES

- **Grewal, D.S.**, Lv, M., Dorfman, S. Press Release - *Extreme Physics and Chemistry Community Workshop*, Arizona State University, USA. Deep Carbon Observatory (November 2017)

SYNERGISTIC ACTIVITIES

Academic

- 2026 Graduate Student Admission Committee, EPS Yale
- 2025 Co-convener of the session “Fate of Volatiles During Magmatic Processes in Planetary Interiors: Implications on the Origins of Habitability” *American Geophysical Union Fall Meeting 2025*
- 2025 Co-convener of the session “Early Earth Origin, Composition, and Evolution” *American Geophysical Union Fall Meeting 2025*
- 2025 Co-convener of the session “Formation, Differentiation, and Evolution of Planets and Asteroids” *Goldschmidt Conference 2025*
- 2024 Primary convener of the session “Planetary Accretion and Differentiation from Interdisciplinary Perspectives” *American Geophysical Union Fall Meeting 2024*
- 2024 Co-convener of the session “The Origin and Evolution of Volatiles in Terrestrial Planets and Exoplanets” *American Geophysical Union Fall Meeting 2024*
- 2024-25 Facility for Open Research in a Compressed Environment (FORCE) Internal Steering Committee
- 2023 Lead Panelist, Session: The behavior of nitrogen during Solar System formation, Nitrogen cycling across planetary scales – Life RCN Workshop, NASA 2023
- 2023 External reviewer for French National Research Agency (ANR) – Planetary Science Program
- 2023 External reviewer for National Science Foundation (NSF) – Geophysics Program
- 2022-23 Co-organizer, Cosmochemistry Seminar, Caltech GPS
- 2022 Primary convener of the session “Accretion and differentiation of rocky planets from interdisciplinary perspectives” *American Geophysical Union Fall Meeting 2022*
- 2021 Co-organizer, CLEVER Planets Seminar Series
- 2021 Panelist, Session: Forming Habitable Worlds, Habitable Worlds Workshop, 2021

DAMANVEER S. GREWAL

2017- Reviewer for *ACS Earth and Space Chemistry* (×1), *Astronomy and Astrophysics* (×1), *Astrophysics and Space Science* (×1), *Advances in Space Research* (×1), *Earth and Planetary Science Letters* (×6), *Geochemical Perspectives Letters* (×3), *Geochimica et Cosmochimica Acta* (×14), *Journal of Geophysical Research (JGR): Planets* (×1), *Nature Communications* (×4), *Nature Astronomy* (×1), *Nature Geoscience* (×1), *Science* (×1), *Science Advances* (×3), and *Scientific Reports* (×1).

Non-academic

2021 Member of Unlearning Racism in Geosciences (URGE) Admissions and Hiring Policies Group, Rice University, Houston
2021 Member of URGE Policies for Working with Communities of Color Group, Rice University, Houston
2021 Volunteer Speaker for Department of Earth, Environmental and Planetary Sciences, O-Week Academic Fair, Rice University, Houston
2012-15 Volunteer teacher, Tibetan Village Children's School, Suja (India)
2012-14 Volunteer student recruiter and teacher, Pehal Charitable Trust, Patiala (India)

MEMBERSHIP WITH PROFESSIONAL SOCIETIES

2023- Meteoritical Society
2018- Geochemical Society
2016- American Geophysical Union