



Mr. Damanveer Grewal

Graduate student
Rice University

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Venue: Zoom

A link will be sent @grc-all within 30 minutes before the beginning of the seminar.

Origin of nitrogen in inner Solar System protoplanets and planets

Long-term habitability of the planetary surfaces of rocky bodies relies heavily on the exchange of life-essential, volatile elements between the mantle and exosphere. Therefore, deciphering the origin of volatiles like nitrogen, carbon and water in the combined atmosphere-crust-mantle reservoir is key. Most studies to date approached the origin of these volatiles on Earth and rocky Solar System planets using isotopic fingerprinting of putative, undifferentiated building blocks and their comparison with terrestrial rocks. However, a critical step of planetary accretion, i.e., core-mantle-atmosphere differentiation for planetesimals, planetary embryos, and growing planets are often overlooked. In this talk, I will discuss some new observations both from meteorites and laboratory experiments to constrain the origin of nitrogen in protoplanets and planets. A by-product will be constraints on the conditions and styles of rocky planet formation and growth that likely led to Earth-like rocky planets with their observed inventory of major volatiles.