Name of the Faculty Member:

Prof. Sandeep Sahijpal

Designation:

Professor (Physics)

Contact details:

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Area of Specialization:

Astrophysics and Planetary Sciences

Award/ Honours/ Fellowship etc.:

1. National Scholarship by Government of India for 1990-91.
2. Silver medal for standing first in B. Sc. III (Hons. School) Physics by University.
3. Research scholarship for Ph.D. from Physical Research Laboratory, Ahmedabad.
4. Post-Doctoral fellowship from Physical Research Laboratory, Ahmedabad.
5. Post-Doctoral fellowship from University of California, Los Angeles.

Highlight of Research work:

My major research work involves development of indigenous theoretical models and numerical simulation codes. Most of the work has been supported by PLANEX (ISRO) research grants.

• ***Astrophysics:*** The origin & evolution of the Milky-way galaxy; the stellar nucleosynthesis & the isotopic abundance evolution of the galaxy since the big-bang around 13.7 billion years ago; the astrophysical aspects related with the origin of the solar system around 4.5 billion years ago; thermodynamics of condensation of interstellar dust in various astrophysical environments.

• ***Planetary sciences:*** Nature of the protosun; the irradiation environment and the physico-chemical processes in the early solar system; the planetary differentiation and aqueous alteration of planetesimals and asteroids; the early thermal evolution and differentiation of Mercury, Moon, Mars and the planetary embryos of Earth and Venus; the thermal evolution of Icy Satellites of the giant planets, Trans-Neptunian objects (TNOs) and the minor planets, e.g., Pluto, Ceres, etc.

Other academic interests: Operation of an 11" Schmidt Cassegrain astronomical telescope facility.

Work compilation

List of ten best publications:

1. **Sahijpal S**. (2021), Thermal evolution of non-spherical asteroids in the early solar system. *Icarus*, 362, 114439.

2. Gupta A. and **Sahijpal S.** (2020), Thermodynamics of dust condensation around the dimming Betelgeuse*. Monthly Notices of the Royal Astronomical Society*, 496 (1), L122-L126.

3. Gupta A. and **Sahijpal S.** (2020), Origin and evolution of the Galactic inventories of interstellar dust and its composition*. Monthly Notices of the Royal Astronomical Society* 494(3):4149-4167.

4. Kaur T. and **Sahijpal S.** (2019), Heterogeneous evolution of the galaxy and the origin of the short-lived nuclides in the early solar system. *Monthly Notices of the Royal Astronomical Society*, 490(2), 1620-1637.

5. **Sahijpal S.** and Goyal V. (2018) Thermal evolution of the early Moon. *Meteoritics & Planetary Science J.* 53, 2193-2211.

6. Bhatia G.K. and **Sahijpal S.** (2017) Thermal evolution of trans-Neptunian objects, icy satellites, and minor icy planets in the early solar system. *Meteoritics & Planetary Science J.* 52, 2470-2490.

7. Bhatia G.K. and **Sahijpal S.** (2016) The early thermal evolution of Mars. *Meteoritics & Planetary Science J.* 51, 138-154.

8. **Sahijpal S.** and Gupta G. (2011) Did the carbonaceous chondrites evolve in the crustal regions of partially differentiated asteroids? *J. Geophys. Res. (Planets)*, 116, E06004.

9. Gupta G. and **Sahijpal S.** (2010) Differentiation of Vesta and the parent bodies of other achondrites, *J. Geophys. Res. (Planets)*, 115, E08001.

10. **Sahijpal S.** and Gupta G. (2009) The plausible source(s) of ^{26}Al in the early solar system: A massive star or the X-wind irradiation scenario? *Meteoritics and Planetary Science J.* 44, 879-890.