S N BOSE NATIONAL CENTRE
FOR BASIC SCIENCES
Block JD, Sector III, Salt Lake, Kolkata 700 106

DEPARTMENTAL SEMINAR

Astrophysics and Cosmology

10th December'2021 2.30 PM ONLINE

SPEAKER

Ms. Ruchi Pandey, Senior Research Fellow, SNBNCBS

TITLE OF THE TALK

Formation of Dust in Novae

ABSTRACT

Novae are the only objects in which it has been possible to observe directly all aspects of circumstellar grain formation on a frequent basis. Compared to interstellar dust, novae dust forms within a short time frame of 30 to 100 days after an outburst, allowing them to serve as perfect laboratories for understanding the formation and evolution of astrophysical dust. Dust formation in the hostile environment of novae ejecta has been an open question for many decades. Several attempts have been made to understand the physical and chemical conditions required to dust formation in novae ejecta and its relation with the observable parameters. However, due to the inherent complexity of the physical and chemical composition of novae ejecta and the multi-step process of dust grain formation, such attempts could only achieve partial success in explaining it. Thus, a more fundamental approach is required where multiple physical and chemical parameters of the dust forming novae ejecta are studied in detail, to estimate favorable conditions for the formation of dust. In this presentation, I will discuss dust formation and evolution in novae. I will review some of the different theories and observational findings to help us understand how dust forms and evolves in these hostile environments. Furthermore, I will also discuss the results of our study of an optically thick dust-forming nova V1280 Scorpii.

HOST FACULTY

Dr. Ramkrishna Das

Associate Professor & Seminar Coordinator, Astrophysics & Cosmology

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