

**INDIAN ASSOCIATION FOR THE CULTIVATION OF SCIENCE**  
2A & 2B, Raja S.C. Mullick Road, Jadavpur, Kolkata-700032, India

**Seminar Notice**  
Org. by  
**School of Physical Sciences**

|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title:</b>    | <b>Lepton Flavored Dark Matter: Two Scenarios</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Speaker:</b>  | <b>Shiuli Chatterjee, Centre for High Energy Physics,<br/>Indian Institute of Science, Bangalore</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Date:</b>     | <b>June 01, 2022 (Wednesday)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Time:</b>     | <b>16:00 Hours (IST)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Venue:</b>    | <b>C.V.Raman Hall, 2nd Floor, Main Building, IACS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Abstract:</b> | <p>I will discuss two cases of lepton flavored dark matter and entailing phenomenology. In the first part of the talk, I will discuss the connection between the stability of and the symmetries possessed by a lepton flavored dark matter (LFDM), systematically showing that many representations of LFDM are stable under the minimal flavor violation (MFV) hypothesis as long as there are no lepton number violating interactions. I will then discuss the production of the dark matter (DM) showing that an LFDM in the MFV framework naturally accommodates a freeze-in production, and finish with a discussion on its detection at present and future direct detection experiments.</p> <p>In the second part of the talk, I will discuss the robustness of neutron stars as probes of particle DM. I will motivate the usefulness of such a probe for the case of muon flavored DM. Subsequently I will discuss the detectability of DM heated old neutron stars at the James Webb Space Telescope (JWST), accounting for all relevant astrophysical uncertainties and exposure time required at the telescope. I will briefly also discuss results showing that the capture rates and subsequently the temperatures of the neutron stars are crucially dependent on the DM properties as opposed to the astrophysical properties of the neutron stars, like equation-of-state, the velocity of the neutron star, DM halo distribution, etc.</p> |

**All are cordially invited to attend the seminar**