**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

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| **Title:** | **Two new moonshines and two new Lie algebras** |
| Speaker: | **Sutapa Samanta, IIT-Madras, Chennai** |
| **Date:** | **February 5, 2019 (Tuesday)** |
| **Time:** | **4:00 p.m.** |
| **Venue:** | **Physics Seminar Room - C406,3rd Floor, Centenary Building, IACS** |
| **Abstract:** | We revisit an earlier conjecture for M12 moonshine and show that there is no unique Jacobi form related to the conjugacy classes of M12. In the absence of M12, we show that there exists moonshines for two distinct L2(11) subgroups of M12. We construct Siegel modular forms for all L2(11) conjugacy classes and show that each of them arise as the denominator formula for distinct BKM Lie superalgebra. Square of these modular forms are generating functions of the 1 4 -BPS states in N = 4 string theory obtained by compactifying heterotic string in ZN orbifolds of CHL. We also construct more general Seigel modular forms for ZM twisted BPS states of ZN CHL orbifolds. We show that the Siegel modular forms for N = 5 and 6 appear as the denominator formula of 'new' type of BKM Lie superalgebras. These are associated to hyperbolic lattices with Weyl vector of hyperbolic type. We also find new examples of BKM Lie algebras corresponding to modular forms that arise from A-series of Umbral Moonshine. |

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