CCMB

Director
and the staff of the

CSIR-Centre for Cellular and Molecular Biology
Hyderabad

cordially invite you to

The 35th Foundation Day Lecture

by

Prof. Ajay Kumar Sood

Principal Scientific Adviser
Govt. of India

on

Nature Inspired Science : Our Journey

at 4.00 P.M. on Saturday, 26th November 2022

Venue:

Auditorium of the
CSIR-Indian Institute of Chemical Technology (IICT)
Uppal Road, Hyderabad 500007

Please be in your seat by 3.15 P.M.

About the Speaker

Prof. Ajay Kumar Sood

Principal Scientific Adviser, Govt. of India

Prof Ajay Kumar Sood is a world-renowned physicist, known for his pioneering research findings on graphene and nanotechnology. Honored with the Padma Shri by the Government of India, and elected as a Fellow of the Royal Society, he is currently a Distinguished Honorary Professor of Physics at Indian Institute of Science, Bangalore, and is serving as the 4th Principal Scientific Adviser to the Government of India.

Prof Sood's research focuses on condensed matter physics, and is acclaimed for the Sood Effect - generation of electrical signals by passing liquids over solids or through nanotubes.

Abstract

This talk will bring out how nature inspires us to explore fascinating phenomena like flocking, a self-organized motion of vast numbers individuals of same species in same direction. It is a common behavior seen in many animals like ants, locusts, birds, fishes etc. As a physicist, he along with his colleagues have tried to understand this beautiful phenomenon in the laboratory by working with inanimate polar granular objects made active by placing them on rapidly vibrating surface amongst spherical beads[1]. He will also discuss destabilizing of collective behavior by motile defects[2], and trapping and sorting active particles based on motility induced condensation[3]. He will show that self-propelled polar rods in an elastic medium have nonreciprocal attraction[4]. He will conclude his talk by presenting their recent results on chiral active particles having particle trajectories with a well-defined chirality to unravel emergent stereoselective interactions and self-recognition[5].

1) Nitin Kumar, Harsh Soni, S. Ramaswamy and A.K. Sood, Flocking at a distance in active granular matter, Nature Communications 5, 4688 (2014).

2) Pradip K Bera and A.K. Sood, Motile dissenters disrupt the flocking of active granular matter, Phys. Rev. E 101, 052615 (2020).

3) Nitin Kumar, Harsh Soni, Rahul Kumar Gupta, Sriram Ramaswamy, A.K. Sood, Trapping active rods: motility-induced condensation in a wedge. PRE 99, 032605 (2019); Soft Matter 16, 7210-7221 (2020).

4) Rahul Kumar Gupta, Raushan Kant, Harsh Soni, A.K. Sood and Sriram Ramaswamy, Active nonreciprocal attraction between motile particles in an elastic medium. Phys. Rev E 105,064602 (2022).

5) Pragya Arora, A. K. Sood and Rajesh Ganapathy, Emergent stereoselective interactions and self-recognition in polar chiral active ellipsoids. Science Advances 7(9), eabd0331 (2021).

PROGRAMME

Saturday, 26th November, 2022

3.30 P.M.	**Welcome and overview**	**Dr Vinay K Nandicoori, Director, CCMB**
3.55 P.M.	**Introduction of the speaker**	**Dr Sriram Varahan**
4.00 P.M.	**Distinguished Lecture**	**Prof. Ajay Kumar Sood**
5.15 P.M.	**Vote of thanks**	**Dr Ishwariya Venkatesh**
5.30 P.M.	**High Tea**	**Shantiniketan - CCMB**
6.15 P.M.	**Cultural Program**	**Manipuri Dance by Manju Elangbam and Troupe**
7.30 P.M.	**Dinner**	**East Wing Parking Area**