

2D or not 2D

(Some considerations of 2- and 3-dimensional Hybrid Halide Materials)



Professor D. D. Sarma

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Date: July 17, 2023

Time: 16:00 hr (IST)

The Talk:

3-dimensional hybrid halide perovskites have been intensely researched because of their extraordinary optoelectronic properties with spectacular quantum efficiencies arising primarily from their suitable bandgaps to harvest the solar spectrum, low excitonic binding energies, and low-cost synthetic processes. However, stabilizing these materials under real-life operating conditions has proven to be a challenge, leading to extensive explorations of lower dimensional analogous hybrid halide materials that are often more stable, though generally having considerably higher bandgaps and excitonic binding energies. A wide variety of properties have been discovered in this class of materials, revealing many fundamental aspects. The talk will focus on more recent results exploring some extraordinary properties in this class of materials.

The Speaker:

Prof. Dipankar Das Sarma, popularly known as D.D. Sarma, is a structural chemist known for his research in the fields of Solid-State Chemistry, Spectroscopy, Condensed Matter Physics, Materials Science, and Nanoscience. He is a former MLS Chair Professor of Physics and Chairman of the Centre for Advanced Materials and the GAST Professor of Uppsala University, Sweden. He has also been the J.N. Tata Chair Professor at the Solid State and Structural Chemistry Unit of the Indian Institute of Science (IISc) Bangalore, an Honorary Professor of JNCASR Bangalore and S N Bose National Center for Basic Sciences, Kolkata, and an Eminent Visiting Fellow at IACS, Kolkata. He is a recipient of several national and international honors including the TWAS Physics Prize and the UNESCO Biennial Javed Husain Prize, the coveted Shanti Swarup Bhatnagar Prize of the CSIR, Honoris Causa Doctorate Degree from Uppsala University, Sweden, the Knight of the Order of the Star of Italy by the Republic of Italy, to name a few. He is an elected Fellow of the Asia-Pacific Academy of Materials (APAM), 2008, a Fellow of the American Physical Society (APS), 2007 and the Fellow of all the Academies of Sciences India.

Venue: TCG CREST, Bengal Eco Intelligent Park, 1st Floor, Block -EM, Sector -V, Salt Lake, Kolkata 700091

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