



**S N BOSE NATIONAL CENTRE
FOR BASIC SCIENCES**

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JOINT DEPARTMENTAL SEMINAR
Condensed Matter and Materials Physics
&
Chemical and Biological Sciences

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4.00 PM

ONLINE / FERMION

SPEAKER



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TITLE OF THE TALK

Our Journey in JNU: Stabilization of Organic Radicals to Molecular and Supramolecular Materials

ABSTRACT

In this talk, I will discuss our group's research work that has been accomplished in JNU. From our initial findings of transformation of electron-deficient molecules into colorful organic radical ions ($S=1/2$ systems) in solution (which existed only up to few hours), I will present our journey involving the various molecular design aspects leading to stabilization of the radical ions under ambient conditions. 1-4 Interestingly, their (radical ion) precursors form the strongest electron acceptors reported till date with LUMO reaching up to -5.05 eV. 3a-b,4 On similar lines, we extended our design aspects to synthesize new multi-electron acceptors and multi-electron donors and controlled eT reactions. 5 In addition, our investigation on switching the redox-states of the radical ions and isolation of these states will be a discussion point of this talk. I will deliberate on how doubly-zwitterionic, highly electron-rich molecular systems can be formed and their interesting aromatic/antiaromatic properties. 6 I will end the discussion with our recent work on the design and synthetic facets of an electron-deficient ionic box that can be a multi-electron accumulator and a proton conductive system, and a contorted molecular box that can act as a singlet fission material. 7

References

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HOST FACULTY

Prof. Anjan Barman, Senior Professor
