



Prosenjit Singha Deo

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Professor Prosenjit Singha Deo did his PhD in 1996 from IOP, BBSR and a couple of post docs in Europe. He joined S.N. Bose Centre in 1999.

Supervision of Research / Students

Ph.D. Students

1. U. Satpathy

Publications in Journals

1. U. Satpathy and **P. Singha Deo**; *Negative partial density of states in mesoscopic systems*; *Annals of physics*; 2016; **375**; 491.

Lectures Delivered

1. National Conference on Condensed Matter Physics at ISI, during 2-3 February, 2017; Delivered talk on "Scattering phase shifts in low dimensions".

Significant research output / development during last one year

General research areas and problems worked on

We have developed a new method to experimentally determine the electronic partial density of states of a non-ergodic mesoscopic system.

Interesting results obtained

A mesoscopic system is a small system coupled to leads with the help of which it exchanges electrons with external reservoirs. The nature and position of these leads crucially determine the states inside the system that are accessed in a particular experiment and ensemble averaging is not allowed. All the known methods of statistical mechanics fails in these systems. Partial density of states determine its thermodynamic and transport properties. Our method helps to determine very accurately the partial density of states at the Fano resonances of such systems.

Proposed research activities for the coming year

Inclusion of Coulomb interaction and their effect on partial density of states.