

Dear All,

INDIAN INSTITUTE OF SCIENCE
BANGALORE

INSTITUTE COLLOQUIUM
(Physical & Mathematical Sciences)

Prof. Diptiman Sen
Centre for High Energy Physics

will deliver a lecture
on

Physics in low dimensions: quantum
wires, spin chains and fractional
quantum numbers

Tuesday, March 24, 2009
at 4.30 pm in the Faculty Hall

THE DIRECTOR
will preside

All are cordially invited

Coffee/Tea: 5.30 pm

Venue: Reception Hall

Abstract

Systems of interacting electrons or spins in one and two dimensions can exhibit a number of unusual features at low temperatures. We will discuss three examples from our work.

(i) The conductances of quantum wires with impurities or junctions vary as a power of the temperature because of interactions between the electrons.

(ii) A chain of quantum spins has quite different properties depending on the values of the spin angular momentum at each site and other parameters of the system.

(iii) In quantum Hall systems, the low-energy excitations can have charges and statistics which are simple fractions of the charge and statistics of an electron. We propose a way of measuring these quantities experimentally.

All the necessary concepts of quantum mechanics will be introduced during the talk.
