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INTERNATIONAL
CENTRE *for*
THEORETICAL
SCIENCES

TATA INSTITUTE OF FUNDAMENTAL RESEARCH

ICTS Special Colloquium

Title : On some Connections between Information Theory, Nonlinear Filtering and Statistical Mechanics

Speaker : Sanjoy Mitter, Massachusetts Institute of Technology, USA

Date : Tuesday, January 8, 2019

Time : 3:00 PM

Venue : Emmy Noether Seminar Room, ICTS Campus, Bangalore

Abstract : The problem of Nonlinear Filtering is to estimate the state of a nonlinear stochastic dynamical system given noisy observations . In the linear situation the problems arose in the work of Wiener , Kolmogoroff in the 40's and subsequently in the work of Kalman in late fifties and early sixties . One of the major applications of this theory is for weather prediction where the problem is known as Data Assimilation. In this lecture I discuss the connection of this work to Shannon Information Theory and Nonequilibrium Statistical Mechanics.

Joint work with Nigel Newton