

Professor R.B. Laughlin

Stanford University
(Nobel Prize in physics 1998)

will present a popular lecture with title

A Different Universe

on Tuesday, April 17, at 12:15-13:00 in R1, Realfagbygget



R. B. Laughlin
Stanford University

Abstract:

The purpose of physics is to discover and reveal the fundamental laws of the universe. Unfortunately, modern experimental advances have revealed two aspects of physical law that are rather different from those imagined by Galileo and Newton. One is that many of the most useful laws - rigidity of solids, for example - are collective in nature, and vanish away when the amount of matter in question is small. The other is such important collective laws can't be rigorously deduced from the more fundamental laws that we believe work at very small scales. This mathematical difficulty is not the exception in physics. It is the rule. Indeed, modern accelerator experiments seem to be telling us that ALL the laws of nature familiar to us are collective in nature - things that emerge from details the way meaning emerges in an impressionist painting when you step backward. This observation has the troubling implication that major parts of modern physics, in particular our obsession with finding a "theory of everything", are ideological, and in this disturbingly similar to medieval thinking about religion.

The lecture is accessible for students.

Professor Laughlin is this year's Lars Onsager Lecturer at NTNU, and will present his official Lars Onsager Lecture "*Onsager's Unsolved Problem: Quantum Criticality*" on Monday, April 16, 2007 at 10:15-11:00 in R1, Realfagbygget.