



清华大学高等研究院 – 冷原子物理系列讲座

Quantum Physics in One Dimension

地点: 高等研究院, 科学馆三楼报告厅

报告人: **Professor Thierry Giamarchi**
University of Geneva

These lectures will discuss various aspects of the physics of interacting quantum systems, in low dimension. Indeed, in such low dimensional systems quantum effects are at their strongest leading to a physics radically novel compared to their higher dimensional counterpart, with phases as varied as spins liquids, Tomonaga-Luttinger liquids, topological orders. I will introduce the theoretical methods needed to tackle these problems and discuss the relevant questions, hot fronts of current's research and future challenges. On the experimental side I will discuss selected situations in both in the condensed matter context and in the one of cold atomic gases.

● Lecture 1 March 23 (Wed) 2016 2:30-4:30 Basics concepts of interacting quantum systems	● Lecture 2 March 25 (Fri) 2016 2:30-4:30 Theoretical methods and the concept of Tomonaga-Luttinger liquid	● Lecture 3 March 28 (Mon) 2016 2:30-4:30 Chosen experimental examples
● Lecture 4 March 29 (Tue) 2016 2:30-4:30 Disorder and other perturbations	● Lecture 5 March 31 (Thu) 2016 2:30-4:30 Beyond Tomonaga-Luttinger liquids	



Professor Thierry Giamarchi

Thierry Giamarchi is a former student of the Ecole Normale Supérieure in Paris and received his Phd from Paris XI University in 1987. He has been a permanent member of the French CNRS (National Center for Scientific Research) since 1986 and spent two years as a postdoc at AT&T Bell laboratories. In 2002 he moved as a full professor to the University of Geneva, where he is now the director of the Quantum Matter Physics Department. His research work deals with the effects of interactions in low dimensional quantum systems, such as Tomonaga-Luttinger liquids, and on the effects of disorder in classical and quantum systems for which he likes to show that they lead to novel disordered phases such as the Bose glass and the Bragg glass. He received the Arago prize from the French Academy of Sciences and since 2013 is a Fellow of the American Physical Society and a member of the French Academy of Sciences. In addition to numerous research publications he is the author of a monograph on "Quantum Physics in one Dimension".