Title: Bit Threads and Holographic Entanglement

Speaker: Matthew Headrick (Brandeis)

Date: Thursday, February 21, 2019

Time/Location: 12:30 pm/ 464 Loomis

Abstract: We will discuss the entanglement structure of so-called holographic states of quantum many-body systems. These are states that admit a dual description as a state of a higher-dimensional gravitational theory. Our main tool will be the concept of “bit threads”, one-dimensional objects in the higher-dimensional space that, as we will show, compute entanglement entropies in the many-body system. The bit threads will explain a previously known but mysterious property of these states called “monogamy of mutual information”, and lead to an intriguing conjecture about their general entanglement structure.
Thursday, February 21: Mathematical and Theoretical Physics Seminar: "Bit Threads and Holographic Entanglement"

Visitors:

12th International Conference on Spectroscopies in Novel Superconductors

Abstract submissions and registration now open!

Dates: June 16-21, 2019

SNS 2019 Important dates:
March 22, 2019: Early registration
April 12, 2019: Abstract submission
May 31, 2019: Regular registration

Location: Tokyo, Japan


Following the SNS tradition, there will be no parallel sessions. The schedule will comprise invited talks as well as oral presentations selected from submitted abstracts.

For more information: http://sns2019.t.u-tokyo.ac.jp/
Les Houches Programme

**Title:** New Developments in Topological Condensed Matter Physics

**Dates:** September 2-13, 2019

The cost for board and lodging will be 895 Euro. We expect to raise funds to lower this, likely to 750-800 Euros. This will need to be paid upon acceptance of participation.

Topological condensed matter is currently one of the most active research fields in physics. The field has matured and broadened considerably in the past 5 years. There have been many exciting developments, in particular in the areas of classification of topological systems, topological quantum chemistry, non-equilibrium dynamics, new types of topological phases (e.g. fractons), higher dimensional topological order, and engineering of non-Abelian excitations. In addition, a huge push for creating quantum computers is underway, part of which involves topologically-based architectures.

This two-week event at Les Houches will provide a broad survey of these developments. It follows on from our four-week programme held in 2014. It takes a hybrid form, with longer lectures interspersed with shorter presentations of recent developments. It is aimed at junior researchers, as well as interested newcomers at all levels.

Conference on Strongly Correlated Quantum Materials

**Location:** Santa Fe, New Mexico

**Dates:** April 29-May 3, 2019

The abstract deadline has been extended to March 1, 2019.

Further information about the conference, including the list of topics and speakers, can be found at the website: [www.cnls.lanl.gov/quantummaterials](http://www.cnls.lanl.gov/quantummaterials)

The conference will bring together a diverse group of leading experimentalists and theorists working on strongly correlated quantum materials, with sessions on topology, quantum magnetism, spin liquids, strange metals, correlated materials at low dimensions, unconventional superconductivity, and non-equilibrium matter. It will promote crosstalk among the subcommunities, and highlight the emerging principles that may apply across the different material classes. As such, speakers are asked to place a particular emphasis on open questions, perspectives and outlooks. In addition to invited talks, the program will feature short talks selected from contributed abstracts, and have poster sessions to display the work of all the attendees.

The conference is sponsored by the Los Alamos National Laboratory Center for Nonlinear Studies. The participation in this conference is limited to a select group of around 40 invited speakers and discussion leaders and about 100 attendees in total.

The conference works to keep your participation cost effective. Details about the registration and lodging costs can be found at the conference website. A substantially discounted rate has been negotiated at the conference hotel, with a reservation deadline of March 17, 2019. A limited number of junior participant travel grants will be available.