

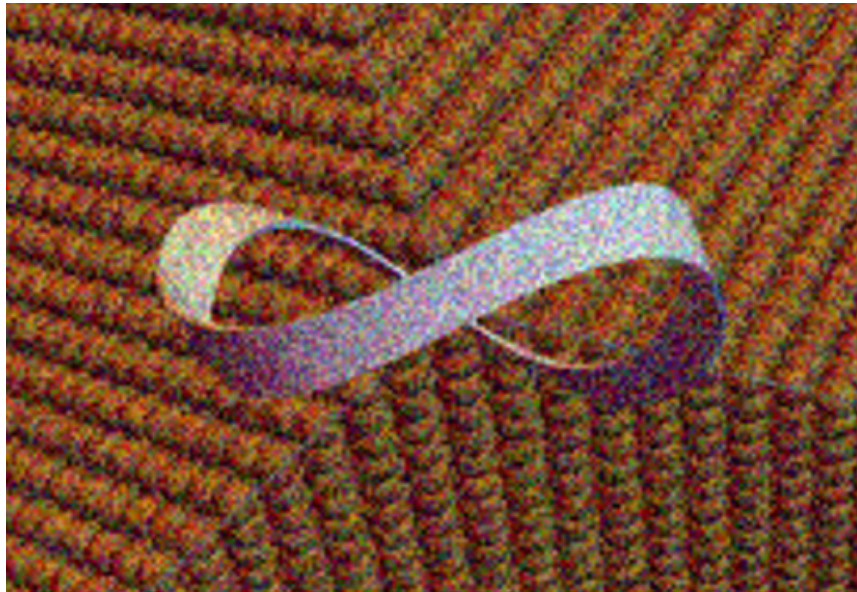
Charles Kane

University of Pennsylvania

Yale Physics

April 23, 2024 at 3:30 pm in SPL 59

Special Physics Club: The Emergence of Topological Quantum Matter



Matter can arrange itself in the most ingenious ways. In addition to the solid, liquid and gas phases that are familiar in classical physics, electronic phases of matter with both useful and exotic properties are made possible by quantum mechanics. In the last century, the thorough understanding of the simplest quantum electronic phase - the electrical insulator - enabled the development of the semiconductor technology that is ubiquitous in today's information age. In the present century, new "topological" electronic phases are being discovered that allow the seemingly impossible to occur: indivisible objects, like an electron or a quantum bit of information, can be split into two, allowing mysterious features of quantum mechanics to be harnessed for future technologies. Our understanding of topological phases builds on deep ideas in mathematics. We will try to convey that they are as beautiful as they are fundamental.

Host: Meng Cheng

Connection info: <https://yale.zoom.us/j/93660628074>; Password: 595687

The Leigh Page Prize Lecture series are given each year by a distinguished physicist in honor of Leigh Page who received his PhD in Physics from Yale in 1913. He was later acting Chair and Director of the Sloane Physics Laboratory. Professor Page devoted his time to teaching (mostly graduate classes), research, and writing several textbooks. Since 1967, several speakers in the Leigh Page Prize Lecture series have later received Nobel Prizes and other notable awards. In connection with the lecture series, a prize is offered to first year graduate students in recognition of their fine academic record and for the promise of important contributions to the field of physics.