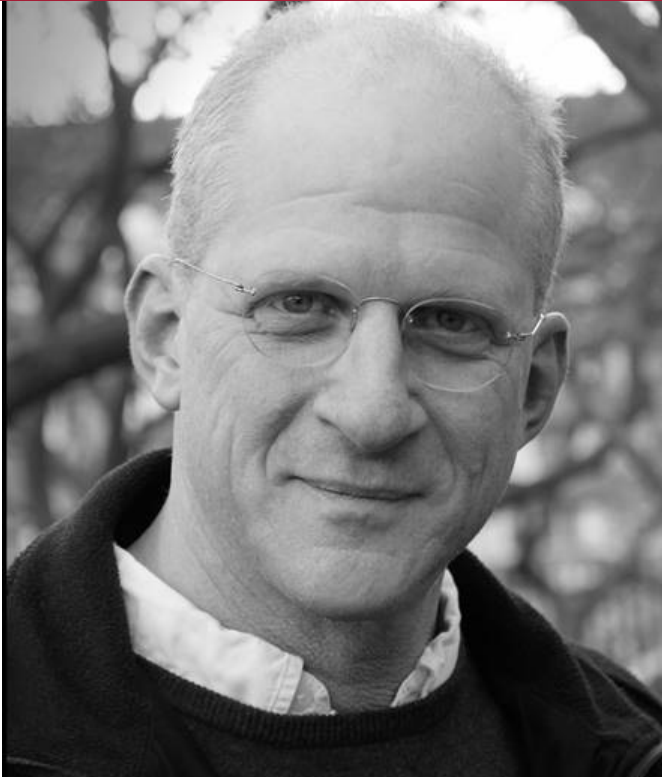


# Robert H. Meservey Memorial Lecture



Charles Marcus

Niels Bohr Institute, University of  
Copenhagen and Director of the  
Center for Quantum Devices

Friday, April 6, 2018  
11:00 am - 12:00 pm  
Pappalardo Room, 4-349

Reception to precede talk at 10:30 am  
outside of 4-349

## Using Topology to Build a Better Qubit

This talk will describe an adventure currently underway to coax into existence excitations (particles) that have non-Abelian braiding statistics—something yet unseen in the physical world—and to not stop there, but to try to employ these new excitations, Majorana zero modes, for a topological quantum computing. Which is more challenging: the mathematics of computing by braiding particles? The material science of creating hybrid materials that support Majorana modes? The nanotechnology of fabricating the devices? The condensed matter physics of producing them in the lab? The electrical engineering of controlling and reading out their state? The software to control the electronics on submicrosecond timescales? This talk will try to cover a small amount of each of these aspects, to convey the sense of complexity of quantum computing generally.

### **Robert H. Meservey Memorial Lectureship**

A lectureship established by family and friends in memory of Robert H. Meservey. The lectureship brings in speakers in the field of Experimental and Theoretical Condensed Matter Physics for the Physics Department, as well as providing support for research and educational activities in the fields of Condensed Matter and Atomic Physics.