

Massachusetts Institute of Technology  
Department of Physics

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## Condensed Matter Theory Seminar

**"Observation of truncated quantum interference patterns on  
rf-SQUIDs constructed on Bi<sub>2</sub>Te<sub>3</sub> surface"**

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**Abstract:** Recently, much attention has been paid to search for Majorana bound state (MBS) in solid-state systems. Among various searching proposals there is one based on radio-frequency superconducting quantum interference devices (rf-SQUIDs), in which a unique  $4\pi$ -perioded current-phase relation (CPR) is expected if MBS exists. Here we report our observations of two simultaneously-truncated and complementarily-correlated patterns of contact resistance oscillation on Pb rf-SQUIDs constructed on the surface of three-dimensional topological insulator Bi<sub>2</sub>Te<sub>3</sub>. The results support the existence of two branches of CPR which are  $4\pi$ -perioded if without truncation. We ascribe the truncation to quasiparticle poisoning which happens unavoidably in our devices at every odd multiples of half flux quantum.

**2:00pm**  
**Tuesday, March 10, 2015**  
**Duboc Seminar Room (4-331)**

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Host: Liang Fu