

# *Colloquium*

**Department of Physics, Temple University**

**Proximity effects on topological surface states of  
Bi<sub>2</sub>Se<sub>3</sub> at non-magnetic and magnetic interfaces from first  
principles**

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## **Abstract**

Topological insulators have drawn a lot of attention due to topologically protected surface states which are robust with weak disorder in the presence of time-reversal symmetry, as well as applications to spintronics and thermoelectrics. For device applications, heterostructures are built and it is critical to understand how the topological surface states are influenced by various interfaces. In this talk, I will present effects of non-magnetic and magnetic interfaces on the characteristics of the surface-state Dirac cones in three-dimensional topological insulators, by using first-principles calculations. In particular, K adsorption, Bi bilayers, and a ferromagnetic insulator on Bi<sub>2</sub>Se<sub>3</sub> will be considered.

**Monday, April 13, 2015 at 3:00 pm**

**SERC, Room 110A**

**Refreshments served at 2:45pm**