

## ΣΕΜΙΝΑΡΙΟ ΦΥΣΙΚΗΣ ΣΥΜΠΥΚΝΩΜΕΝΗΣ ΥΛΗΣ

**Τρίτη 05-02-2019 12:00 μ.μ.**

Αίθουσα 027, Ισόγειο Κτηρίου Φυσικής, Πολυτεχνειούπολη Ζωγράφου

### **“Search for Novel Topological Weyl Semimetal Phases”**

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Topology in various guises plays a central role in modern condensed matter physics. Although the original applications of topological ideas to band structures in semiconductors relied on the existence of a fully gapped bulk spectrum, more recently it has been recognized that protected surface states can arise even in *gapless* systems. The prototypical example of a gapless topological phase is a Weyl semi-metal showing linear dispersion around nodes termed as Weyl points, as the three-dimensional analog of graphene. Surface Fermi arcs are the most prominent manifestation of the topological nature of Weyl semi-metals. First, I will give an overview of topological insulators and Weyl semimetals. I will then discuss predictions of the emergence of Weyl semimetal phase (1) in the  $\text{Pb}_{1-x}\text{Sn}_x\text{Te}$  which undergoes a pressure-induced metallic phase described by the Weyl scenario, and (2) in the interfacial phase-change memory (iPCM)  $\text{GeTe}/\text{Sb}_2\text{Te}_3$ , a promising candidate for the next generation non-volatile random-access memories.

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