Condensed Matter Seminar

KONDO INSULATORS: INSULATOR, METAL OR TOPOLOGICAL INSULATOR?

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In the last few decades, various puzzles have emerged in the study of strongly-correlated materials. In a family of strongly-correlated insulators, which are known as Kondo insulators, one such long-standing puzzle has remained open for over 40 years. In particular, it has been found that some Kondo insulators display strange electrical transport that cannot be understood if one assumes that it is governed by the three-dimensional bulk. In this talk, I show that some Kondo insulators have the right ingredients to be topological insulators, which we called topological Kondo insulators. This topological picture opens up a new way to understand their strange transport behaviors. I will also discuss the recent experiments, which indicates that SmB_6 is indeed a bulk insulator with a conducting surface.

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