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Topological materials: from spin-orbit coupling to supersymmetry-on-a-chip[1]

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Last year's Nobel prize in physics was awarded to Thouless, Haldane, and Kosterlitz "for theoretical discoveries of topological phase transitions and topological phases of matter". The theoretical and experimental discovery of topological insulators in particular has led to an explosion of activity in condensed matter physics over the past ten years or so. In this talk I will give an overview of the field of topological materials, and argue that recent developments in this field may lead to the observation of exotic phenomena predicted in elementary particle physics such as axions and supersymmetry.

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