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*On the K-theory classification of topological states of matter*

Abstract: Topological insulators and superconductors are many-fermion systems possessing an unusual band structure that leads to a bulk band gap as well as topologically protected gapless extended surface modes (known as the 'bulk-boundary correspondence'). It was recently realised by Kitaev, that deformation classes of gapped Hamiltonians are naturally classified by K-theory. This classification parallels the classification of the 2 complex and 8 real symmetry classes of Hamiltonians (the '10-fold way') of Altland and Zirnbauer, and naturally leads to a periodic table of topological insulators. In this talk I will give a brief overview of these developments. I will also describe how the bulk-boundary correspondence fits in with the K-theory picture.