

TOPOLOGICAL MATERIALS SCIENCE

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Topology, a mathematical concept, recently became a hot and truly transdisciplinary topic in condensed matter physics, solid state chemistry and materials science. All 200 000 inorganic materials were recently classified into trivial and topological materials: topological insulators, Dirac, Weyl and nodal-line semimetals, and topological metals. Beyond Weyl and Dirac, new fermions can be identified in compounds that have linear and quadratic 3-, 6- and 8- band crossings that are stabilized by space group symmetries. Around 20% of all materials host topological bands. Currently, we have focussed also on magnetic materials, a fertile field for new since all crossings in the band structure of ferromagnets are Weyl nodes.

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