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Topological Electronics States and Materials

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The rapid development in the field of topological states is due both to conceptual theoretical advances, and to the discoveries of realistic materials where these exotic states can be hosted. First principles calculations play important roles in this field. On the theoretical front, the calculations and understanding of Berry curvature and gauge field established the connection between topology and electronic structures. On the experimental side, most of materials discovered up to now in this field are stimulated by computational predictions. In this talk, I will review recent progresses in this field, with focus on topological semimetals, and address some recent theoretical and experimental results.