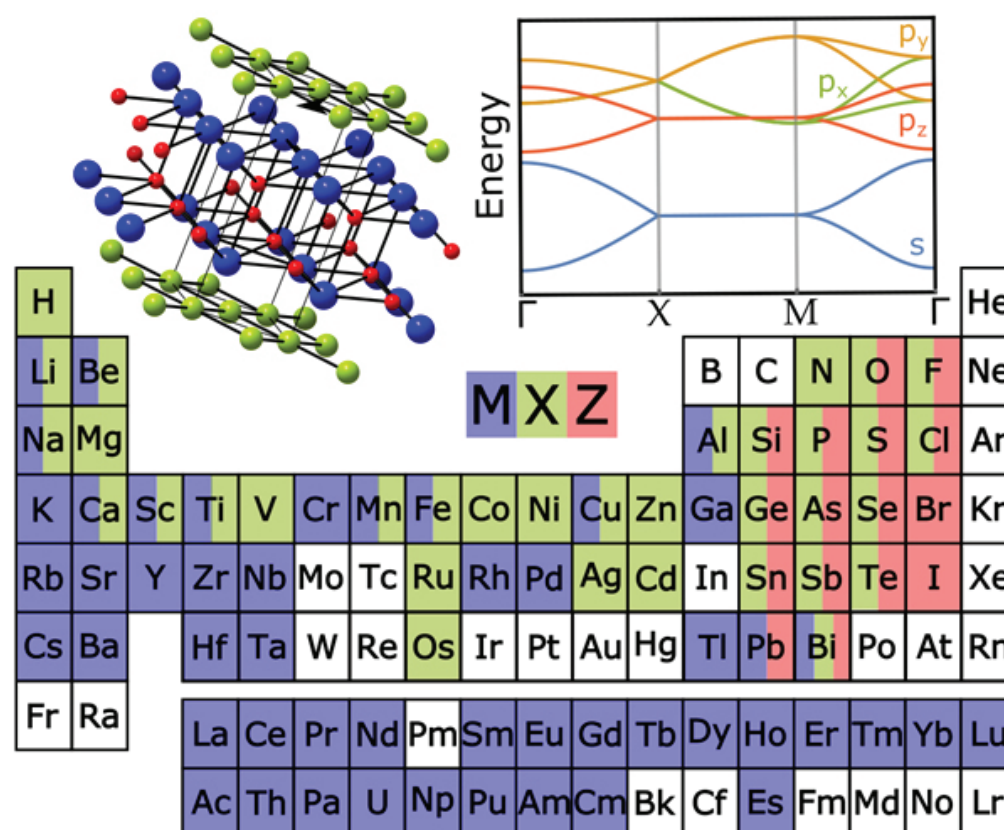


Leslie M. Schoop

Chemical Bonds in Square Nets and Their Relation to Topology



The very simple structural motif of a square net has gained interest from both, solid-state chemists and condensed-matter physicists, for a long time. The fascinating aspect from the chemistry perspective is the nature of chemical bonding in the motif. If composed of main group elements, it can feature a delocalized, “hypervalent” bond, which violates conventional electron counting schemes. In this talk, I am going to show how this type of bonding can be related to topology. After establishing this relation, it becomes possible to identify, synthesize and study a variety of new topological semimetals. I will introduce several of these during this talk.

Leslie M. Schoop is an assistant professor in the Department of Chemistry at Princeton University. She received her master of science in chemistry (with distinction) from Princeton, and her Ph.D. in chemistry, also from Princeton. Among several awards, in 2015 she received the Minerva Fast Track Fellowship of the Max Planck Society, and in 2019 she received the Beckman Young Investigator Award. Her research interests include development of new quantum materials such as topological insulators, 3-D Dirac and Weyl semi-metals, frustrated magnets/spin liquids, and new two-dimensional nano sheets.

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