1123-46-331 **Ralph M Kaufmann**, Dept. of Mathematics, Purdue University, West Lafayette, IN 47907, **Sergei Khlebnikov**, Dept. of Physics and Astronomy, Purdue University, West Lafayette, IN 47907, **Dan Li**, Dept. of Mathematics, Purdue University, West Lafayette, IN 47907, and **Birgit Wehefritz-Kaufmann*** (ebkaufma@math.purdue.edu), Dept. of Mathematics, and Dept. of Physics and Astronomy, Purdue University, West Lafayette, IN 47907. *Topology and Matter.*

The theory of topological properties of materials or condensed matter systems has become increasingly sophisticated. The most prominent has been Kitaev's "periodic table" for topological insulators. The main idea is that there are topological invariants, which dictate the behavior of the system. The tools include Chern-classes and K-theory in various flavors. We will give an overview of these tools and explain how they can be used in concrete situations. (Received August 29, 2016)