Prismatic Maps for the Topological Tverberg Conjecture
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As an approach to disprove the topological Tverberg Conjecture, we have developed in 2013-2015 a theory of elimination of higher-multiplicity intersections. This has led to the discovery of two families of counterexamples to the topological Tverberg:

The first relies on Frick's important observation that the dimensional restriction of our theory can be overcome by a combinatorial trick of Gromov'10 or Blagojevic-Frick-Ziegler'14.

The second family of counterexamples (the main topic of this talk) is based on the notion of "prismatic maps" which are maps from the N-simplex to R^d that are simple to construct, but enjoy strong restrictions on their Tverberg partitions. A simple example is an affine map from the 8-simplex to a triangular prism in R^3 defined by mapping (generically!) 3 vertices to each of the 3 'pillars' of the prism: the Tverberg partition must then consist of triangles only.

This is a joint work with Uli Wagner (IST, Austria).