1143-81-301 **Ralph M Kaufmann**, **Sergei Khlebnikov** and **Birgit Kaufmann***
(ebkaufma@math.purdue.edu), 150 N. University Street, West Lafayette, IN 47907. *New results for the topology of the gryroid wire network.*

The gyroid wire network is a highly interesting triply periodic structure that can be synthesized in the lab on the nanoscale. We analyze the bandstructure of the Harper Hamiltonian on this gyroid wire network. It exhibits several level crossings. The topology at these level crossings is very intriguing and can be characterized by Chern numbers calculated on 2-d slices in the Brillouin zone. The symmetry of the underlying structure leads to strong constraints for these topological invariants. We report on the newest results about local and global models for the topology at the level crossings points. This is joint work with R. Kaufmann and S. Khlebnikov. (Received August 17, 2018)