HERMANN SCHULZ-BALDES, University of Erlangen-Nirnberg
Topological invariants in disordered topological insulators

The mathematics of topological insulators concerns invariants, index theorems and the bulk-boundary correspondence. These concepts and results are explained on the example of one-dimensional chiral systems. Particular focus will then be on the spectral localizer, a recently developed technique to detect non-trivial topology locally in physical space. It makes any kind of index pairing numerically accessible. The associated index-theoretic proof heavily uses fuzzy spheres.