【CL2-2】

Computational Topology for Spreading Dynamics

Barbara Mahler[1], Ulrike Tillmann[1], Heather Harrington[1], Mason Porter[2]

[1] *Mathematical Institute, University of Oxford*
[2]*Department of Mathematics, University of California, Los Angeles*

We consider complex contagions on " noisy geometric networks". These are networks whose nodes are embedded in a manifold and have both "geometric edges" that respect the geometry of the underlying manifold and "non-geometric edges" that are not constrained by the geometry of the underlying manifold. In particular, we study a threshold contagion model on a noisy geometric network whose nodes are embedded in a torus. We investigate the pattern of propagation of the contagion and the extent to which it adheres to the structure of the underlying torus. Our methods involve using a "contagion map" to map the network nodes to a point cloud, which we analyze using tools from computational topology.