

- **Brück, Benjamin: Topology of free factor complexes**

In joint work with Radhika Gupta, we study the topology of the free factor complex FC_n , a simplicial complex associated to $Out(F_n)$, the outer automorphism group of the free group. This is done by interpreting FC_n as a structure at infinity of Culler-Vogtmann's Outer space.

Outer Space is often seen as an $Out(F_n)$ -analogue of symmetric spaces. Following this analogy, the free factor complex can be thought of as an analogue to spherical buildings, which by results of Borel-Serre describe the topology at infinity of symmetric spaces. In our work, we first show that the free factor complex is homotopy equivalent to a certain subcomplex of the simplicial boundary of Outer space. We then use this to obtain connectivity results by exploiting the geometry of projection maps from the boundary of Outer space to its interior. As a consequence of that, we are able to show that FC_n is homotopy equivalent to a wedge of $(n-2)$ -spheres.