Ilya Kapovich

Title: On hyperbolicity of the free factor and free splitting complexes.

Abstract: The free factor complex FF_N and the free splitting complex FS_N are two natural free group analogs of the curve complex, and they both come equipped with natural isometric $Out(F_N)$-actions. We show how to derive hyperbolicity of the free factor complex from the Handel-Mosher proof of hyperbolicity of the free splitting complex, this providing a new proof of a theorem of Bestvina-Feighn. We also prove that for the natural projection $\tau : FS_N \to FF_N$ for any two vertices $x, y \in FS_N$, the image $\tau([x, y])$ of a geodesic $[x, y]$ is uniformly Hausdorff-close to a geodesic $[\tau(x), \tau(y)]$. The talk is based on a new joint paper with Kasra Rafi.