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Immersion of Surfaces in 2-Dimensional Complexes

An outstanding conjecture by M. Gromov asserts that a one-ended hyperbolic group contains a subgroup isomorphic to the fundamental group of a closed surface. Motivated by this conjecture, we study the existence of immersions of closed surfaces in 2-dimensional CW-complex. Our results provide sufficient conditions for the existence of such immersions and imply the existence of surface subgroups in a particular class of hyperbolic groups.

Joint work with M. Forester and N. Brady.