ADAM LEVINE, Princeton University

Satellite operators and piecewise-linear concordance.

Every knot in the 3-sphere bounds a piecewise-linear (PL) disk in the 4-ball, but Akbulut showed in 1990 that the same is not true for knots in the boundary of an arbitrary contractible 4-manifold. We strengthen this result by showing that there exists a knot K in a homology sphere Y (which is the boundary of a contractible 4-manifold) such that K does not bound a PL disk in any homology 4-ball bounded by Y. The proof relies on using bordered Heegaard Floer homology to show that the action of a certain satellite operator on the knot concordance group is not surjective.