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**Adam Simon Levine\*** ([as12@math.princeton.edu](mailto:as12@math.princeton.edu)), Fine Hall, Washington Road, Princeton, NJ 08540. *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 exist a homology sphere  $Y$  that bounds a contractible 4-manifold and a knot  $K \subset Y$  that does not bound a PL disk in any homology 4-ball bounded by  $Y$ . We also describe how a variety of knot invariants arising from Heegaard Floer homology may be used to obstruct the existence of such disks. (Received September 22, 2014)