JOHN BERMAN, University of Texas at Austin
Rational Euler Characteristic

The Euler characteristic is a beloved invariant of spaces which are finite in homology. On the other hand, Baez and Dolan's homotopy cardinality is an invariant of spaces which are finite in homotopy, with applications from group theory to mathematical physics. Although no nontrivial space has both invariants well-defined, nonetheless Baez wonders whether they are two faces of the same coin. We will answer Baez's question by constructing an Euler characteristic on a class of p-complete spaces which generalizes both the Euler characteristic and homotopy cardinality, and we also show that there can be no such invariant unless we complete at a prime.