

Jürgen Appell

Universität Würzburg, Germany

Fixed points, retractions, deformations, eigenvalues, and around

As is well known, in any infinite dimensional Banach space one may find fixed point free self-maps of the unit ball, retractions of the unit ball onto its boundary, deformations of the unit sphere into a point, and nonzero maps without positive eigenvalues. We discuss a certain 'quantitative' version of this result by estimating or even calculating the minimal Lipschitz constants or measures of noncompactness of such maps. Surprisingly, results of this type depend on the geometry of the underlying Banach space, rather than on the explicit form of the map.