Discretization and affine approximation in high dimensions

Sean Li

Bates, Johnson, Lindenstrauss, Preiss, and Schechtman proved that Lipschitz maps from the unit ball of a finite dimensional space into a superreflexive Banach space must be approximately affine on some smaller ball of a controlled radius r. However, one cannot read any kind of estimate of r from their proof. We present a new proof that gives a concrete lower bound for r. We also apply the affine approximation estimate to Bourgain's discretization theorem and give a background to the related Ribe program.

This is joint work with Assaf Naor.