

1044-46-183

Eduardo Castillo Santos (Francisco.CastilloSantos@studentmail.newcastle.edu.au),
University of Newcastle, NSW 2308, Australia, **Chris Lennard*** (lennard@pitt.edu), University
of Pittsburgh, Pittsburgh, PA 15260, and **Brailey Sims** (Brailey.Sims@newcastle.edu.au),
University of Newcastle, NSW 2308, Australia. *Uniform normal structure is equivalent to the
Jaggi* uniform fixed point property.*

Jaggi and Kassay proved that for reflexive Banach spaces X , normal structure is equivalent to the Jaggi fixed point property (i.e. all Jaggi-nonexpansive maps on closed, bounded, convex sets in X have a fixed point); which we note is equivalent to a natural variation: the Jaggi* fixed point property.

In the spirit of this result, we prove that for all Banach spaces X , uniform normal structure is equivalent to the Jaggi* uniform fixed point property: i.e. there exists a constant $\gamma_0 \in (1, \infty)$ such that for all $\gamma \in [1, \gamma_0)$, every Jaggi* γ -uniformly Lipschitzian map T on a closed, bounded, convex subset K of X has a fixed point.

Here, T is Jaggi* γ -uniformly Lipschitzian if for all T -invariant subsets G of K , for all $x \in \overline{\text{co}}(G)$, for all $n \in \mathbb{N}$

$$\sup_{z \in G} \|T^n x - T^n z\| \leq \gamma \sup_{z \in G} \|x - z\| .$$

(Received September 01, 2008)