1077-46-1843　　　　**Otmar Scherzer*** (`otmar.scherzer@univie.ac.at`), Nordbergstr. 15, Vienna, Austria, and **Maarten de Hoop** and **Lingyun Qiu**. *Hoelder Stability and Iterative Rconstruction in Inverse Problems.*

We consider a class of inverse problems defined by a nonlinear map from parameter or model functions to the data. We assume that solutions exist. The space of model functions is a Banach space which is smooth and uniformly convex; however, the data space can be an arbitrary Banach space. We study sequences of parameter functions generated by a nonlinear Landweber iteration and conditions under which these strongly converge, locally, to the solutions within an appropriate distance. We express the conditions for convergence in terms of Hölder stability of the inverse maps, which ties naturally to the analysis of inverse problems. (Received September 21, 2011)