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On Approximating Zeros of Monotone Operators in Banach Spaces

The problem of finding and approximating zeros of monotone operators is well studied in Hilbert spaces motivated by its root in nonlinear problems of mathematical analysis and applications. Progress has been due to the nice geometry and identities of the space and its isomorphism to the dual. These readily lend problem to the powerful machinery of fixed point theory via transformation to the problem of finding fixed points of pseudocontractions. In general Banach spaces, where the notion of fixed points does not make sense for such operators, it is not immediately clear how to tow this path.

In this talk, we introduce a recent fixed point notion which presents a framework for the zero-problem in the sense of fixed point theory. Using this, we construct an approximation scheme which converges strongly to a solution of the zero-problem in Banach spaces. This is a joint work with Charles Chidume.