

Strong convergence theorems for resolvents of accretive operators with possible unbounded errors

Vahid Mohebbi^{1*} and Behzad Djafari Rouhani²

^{1,2} Department of Mathematical Sciences, University of Texas at El Paso, 500 W. University Avenue, El Paso, Texas 79968, USA.

Abstract. We study the strong convergence of the sequence generated by an inexact proximal point method with possible unbounded errors for finding zeros of m -accretive operators in Banach spaces. We show that the boundedness of the generated sequence is equivalent to the zero set of the operator to be nonempty. In this case, we prove that the generated sequence is strongly convergent to a zero of the operator. This process defines a sunny nonexpansive retraction from the Banach space onto the zero set of the operator. We present also some applications and numerical experiments for our results.

¹E-mail: 1vmohebbi@utep.edu, 2behzad@utep.edu.

* Speaker: Vahid Mohebbi