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Ram U Verma* (verma99@msn.com), Texas A&M University, Dept of Mathematics, 700 University Blvd, Kingsville, TX 78363. *Relatively Relaxed Proximal Point Algorithms for Generalized Maximal Monotone Mappings and Douglas-Rachford Splittings*. Preliminary report.

The maximal monotone set-valued mappings provide a powerful framework to study convex programming and variational problems. Based on the notion of relatively maximal monotonicity, the approximation solvability of a general class of variational inclusion problems is examined, while generalizing most of existing investigations on weak convergence using the proximal point algorithms in a real Hilbert space setting. We do observe that the obtained results can be applied to Douglas-Rachford splitting methods for finding the zero of the sum of two monotone mappings, as well as to Yosida approximations to the context of first-order evolution inclusions. (Received September 13, 2010)