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Teffera M. Asfaw* (teffera6@vt.edu), Department of Mathematics, Virginia Tech, Blacksburg, VA 24061. *Variational inequalities for perturbed noncoercive operators of monotone type in reflexive Banach spaces.* Preliminary report.

Let X be a real reflexive locally uniformly convex Banach space with locally uniformly convex dual X^* . Let K be a nonempty, closed and convex subset of X and $f^* \in X^*$. Let $\phi : X \supseteq D(\phi) \rightarrow (-\infty, \infty]$ be a proper, convex and lower semicontinuous function. New existence results are given for solvability of variational inequality problems of the type $\text{VIP}(T+A+S, \phi, f^*)$ where the operator $T+A+S$ is possibly noncoercive, $T : X \supseteq D(T) \rightarrow 2^{X^*}$ is maximal monotone, $A : X \supseteq D(A) \rightarrow 2^{X^*}$ is densely defined maximal monotone and $S : X \supseteq D(S) \rightarrow 2^{X^*}$ is bounded pseudomonotone. The existence results developed herein are applied to study existence of generalized solution(s) in $X = L^p(0, T; W_0^{1,p}(\Omega))$ (with suitable $p > 1$) of a certain nonlinear parabolic boundary problem.

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