Journal of Convex Analysis 11 (2004) 285–301

Assis Azevedo, Lisa Santos:

Convergence of Convex Sets with Gradient Constraint

Given a bounded open subset of $\mathbb{R}^N$, we study the convergence of a sequence $(\mathbb{K}_n)_{n\in\mathbb{N}}$ of closed convex subsets of $\mathbf{W}_0^{1,p}(\Omega)$ ($p \in]1,\infty[$) with gradient constraint, to a convex set $\mathbb{K}$, in the Mosco sense. A particular case of the problem studied is when $\mathbb{K}_n = \{v \in \mathbf{W}_0^{1,p}(\Omega) : F_n(x,\nabla v(x)) \leq g_n(x)$ for a.e. x in $\Omega\}$. Some examples of non-convergence are presented.
We also present an improvement of a result of existence of a solution of a quasivariational inequality, as an application of this Mosco convergence result.