On a class of variational inequalities
Stanislaw Migórski

Jagiellonian University, Krakow, Poland
E-mail: stanislaw.migorski@uj.edu.pl

We discuss some results on the well posedness of the variational inequality of the following form. Find $u \in K$ such that

$$
\langle Au, v - u \rangle + \varphi(u, v) - \varphi(u, u) + j^0(u; v - u) \geq \langle f, v - u \rangle \quad \text{for all } v \in K.
$$

Here $X$ is a reflexive Banach space, $K$ is a subset of $X$, $A: X \to X^*$ is an operator, and $\varphi: K \times K \to \mathbb{R}$ and $j: X \to \mathbb{R}$ are prescribed functions. The function $\varphi(u, \cdot)$ is assumed to be convex and the function $j$ is locally Lipschitz and, in general, nonconvex. For this reason, the inequality is called a variational-hemivariational inequality. Moreover, some applications to contact problems in solid and fluid mechanics are provided.

References

