

MOSCO CONVERGENCE OF CLOSED CONVEX SUBSETS AND RESOLVENTS OF MONOTONE OPERATORS

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The theory of maximal operators in Banach spaces has been deeply studied and applied to various areas of mathematics such as differential equations, variational inequalities, minimization problems, and so on. On the other hand, the theory of set-convergence also has wide variety of applications. Especially, the Mosco convergence is one of the most important concepts for reflexive Banach spaces. We consider a sequence of maximal monotone operators and study a relation between convergence of their resolvents and Mosco convergence of their zeros. We also study equivalent conditions of strong convergence for a sequence of resolvents.

In this talk, we first consider one type of resolvents, that is, $(I + \lambda J^{-1}A)^{-1}$, and prove an analogous result to the theorem proved by Ibaraki, Kimura, and Takahashi. Next, we study strong convergence of this kind of sequence and obtain equivalent conditions for both types of resolvents, that is, $(I + \lambda J^{-1}A)^{-1}$ and $(J + \lambda A)^{-1}J$. Finally, we show a result concerning the relation between strong convergence of these two types of resolvents.

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