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Banach空间中变分不等式的例外簇与严格可行性问题

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Exceptional Families of Elements and Feasibility for Variational Inequality Problems in Banach Spaces

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摘要 本文在Banach空间中对变分不等式的例外簇, 严格可行性及解的存在性三者之间的关系进行了研究, 将补问题中的相应结果进行了推广. 首先通过定义一类新的例外簇, 在映射为拟单调的情况下, 证明了变分不等式解的存在性与例外簇之间的关系, 即若变分不等式不存在例外簇, 则解一定存在. 其次主要证明了变分不等式的严格可行性与例外簇之间的关系, 即若变分不等式存在严格可行性, 则例外簇不存在.

关键词: 变分不等式   例外簇   严格可行性   拟单调映射

Abstract: In this paper, we apply the exceptional families of elements to the study of feasibility of general variational inequality problems with quasimonotone operator. This generalized the corresponding results from complementarity problems to variational inequality problems. We also show that for a quasimonotone operator, the solvability of a general variational inequality problem is equivalent to the property of the function to be without the exceptional families of elements by using the generalized projection operator and the Leray-Schauder type alternative.

Key words: exceptional families of elements   quasimonotone operator   generalized projection operator   feasibility   variational inequality problems

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