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The blow-up phenomenon of solutions of heat conduction equation in binary mixtures.
(Chinese. English summary) [Zbl 07448767]

Summary: The heat conduction equation in a binary solid mixture on a bounded convex domain is considered, in which the local nonlinear conditions are satisfied on the boundary of the domain. By properly limiting the nonlinear conditions and the initial value, the lower bound of the blow-up time is obtained by using the method of energy estimation. The conditions under which the blow up must occur at a finite time are found and the upper bound of the blow-up time is obtained.

MSC:
35B44 Blow-up in context of PDEs
35K05 Heat equation

Keywords:
binary heat equations; blow-up; upper bound