

On instant blow-up for semilinear heat equations with growing initial data

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For a semilinear heat equation admitting blow-up solutions a sufficient condition for nonexistence of local-in-time solutions are obtained. In particular, it is shown that if an initial data tends to infinity at space infinity then there is no local-in-time solution. As an application if the solution blows up at space infinity with least blow-up time, the solution cannot be extendable after blow-up time.