

Accepted Manuscript

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PII: S0893-9659(17)30293-8
DOI: <https://doi.org/10.1016/j.aml.2017.09.014>
Reference: AML 5342

To appear in: *Applied Mathematics Letters*

Received date: 23 August 2017
Revised date: 27 September 2017
Accepted date: 27 September 2017

Please cite this article as: Y. Yanbing, X. Runzhang, Finite time blowup for nonlinear Klein-Gordon equations with arbitrarily positive initial energy, *Appl. Math. Lett.* (2017), <https://doi.org/10.1016/j.aml.2017.09.014>

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Finite time blowup for nonlinear Klein-Gordon equations with arbitrarily positive initial energy

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Abstract

This paper is concerned with the finite time blow up of the solution to the Cauchy problem for the Klein-Gordon equation at arbitrarily positive initial energy level. By introducing a new auxiliary function and an adapted concavity method we establish some sufficient conditions on initial data such that the solution blows up in finite time, which extends the results established in [4](Y.J. Wang, A sufficient condition for finite time blow up of the nonlinear Klein-Gordon equations with arbitrarily positive initial energy. Proceedings of the American Mathematical Society, 136 (2008) 3477-3482).

Keywords: Klein-Gordon equation, Cauchy problem, arbitrarily positive initial energy, blow up

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