

ABSTRACT

EXISTENCE OF THE GLOBAL ATTRACTOR OF THE NON-LINEAR WAVE EQUATION

In this thesis, we prove the existence of the global attractor of a non-linear wave equation using a new method. This method is obtained by first introducing a new type of compactness for semigroups, called omega-limit compactness. Then using Kuratowski's measure of noncompactness, a new necessary and sufficient condition for the existence of global attractor is introduced. The main advantage of this method is that, here we only need to verify the same type of energy estimates as those for establishing the absorbing set. In other words, one does not need to obtain estimates in function spaces of higher regularity.