

It is possible to define reasonable global mass for asymptotically flat space-times. In this work we compute the Bondi mass of asymptotically simple space-time that contains interacting scalar and electromagnetic fields. We then obtain the Bondi mass-loss formula and show that it is negatively semi-definite. These results are derived with the help of spinorial techniques which we introduce in the first part of this thesis, which also contains brief review of several other constructions of energy in general relativity.