Seminar

Dr. Annegret Burtscher

U Bonn

On the asymptotic behavior of static perfect fluids

Wednesday, August 9, 2017

at 15:30 h

ESI, Schrödinger Lecture Hall

Abstract: We are interested in the global behavior of solutions of the static Einstein-Euler equations in spherical symmetry, a system of two singular nonlinear ordinary differential equations which is used for stellar models in astrophysics. Depending on the equation of state, such solutions have either finite or infinite extend. All solutions with finite extend and some very special solutions with infinite extend are geometrically well-understood: they are asymptotically flat. Unfortunately, most solutions do not fall in this category and up to now a geometric framework describing their behavior as the radius tends to infinity is missing. We employ dynamical systems analysis to investigate the asymptotic behavior of solutions to the initial value problem for linear and polytropic equations of state and relate it to the asymptotic behavior of global monopoles. This is joint work with Lars Andersson.

P. Chruściel

August 7, 2017