

In the seminal work by Oppenheimer and Snyder from 1939 it is shown that a homogeneous ball of dust undergoes gravitational collapse. I will present a result which shows that this gravitational collapse can be approximated arbitrary well by solutions to the Einstein-Vlasov system. Extensions of this result to the inhomogeneous case will also be discussed. In particular, there exist inhomogeneous data for dust which give rise to naked singularities. A result will be presented which shows the mechanism why the naked singularities likely disappear by evolving these data with the Einstein-Vlasov system. This is a joint work with Gerhard Rein.