A rigorous stability result for the Vlasov-Poisson system in three dimensions

J. Batt¹, G. Rein

1) Mathematisches Institut der Universität München, Theresienstr. 39, 80333 München, Germany

It is proven that in a neutral two-component plasma with space homogeneous positively charged background, which is governed by the Vlasov-Poisson system and for which Poisson's equation is considered on a cube in $\mathbb{R}^3$ with periodic boundary conditions, the space homogeneous stationary solutions with non-positive energy gradient and compact support are (nonlinearly) stable in the $L^\infty$-norm with respect to weak solutions of the initial value problem.

Gerhard Rein (rein@rz.mathematik.uni-muenchen.de)