
VADIM KALOSHIN, Department of Mathematics, The Pennsylvania State University, University Park, PA 16802, USA
Hausdorff dimension of oscillatory motions for the 3-body problem

Consider the classical 3-body problem mutually attracted by Newton gravitation. Call motions oscillatory if at time tends to infinity \limsup of maximal distance among the bodies is infinite, while \liminf is finite. In the '50s Sitnikov presented the first rigorous example of oscillatory motions for the so-called restricted 3-body problem. Later in the '60s Alexeev extended this example to the 3-body problem. A long-standing conjecture, probably going back to Kolmogorov, is that oscillatory motions have measure zero. We show that for the Sitnikov example and for the so-called restricted planar circular 3-body problem these motions often have full Hausdorff dimension.

This is a joint work with Anton Gorodetski.