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# Hausdorff dimension of oscillatory motions

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**Abstract**

Consider the classical 3-body problem, where bodies are mutually attracted by Newton graviation. Call motion oscillatory if as time tends to infinity limsup of maximal distance among the bodies is infinite, while liminf is finite. In the 50's Sitnikov presented the first rigorous example of ocsillatory motions for the so-called restricted 3-body problem. Later in the 60's Alexeev extended this example to the full 3-body problem. A long-standing conjecture of 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 form a set of maximal possible Hausdorff dimension.

*This is a joint work with A. Gorodetski.*