

Free-fall three-body problem and complexity of finite symbolic sequences

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Abstract. We study complexity of trajectories free-fall equal-mass three-body problem. Symbolic sequences are constructed by numerical integration of the equations of motion. Different measures of complexity are used: Shannon and Markov entropies, Arnold complexity and others. To analyze complexity of individual trajectories we use sliding window method: we choose the window size, select the sub-sequence of this size starting from the beginning and calculate Shannon entropy. We then move one position to the right and repeat the process. Comparing regions with high and zero entropy values allows us to discriminate between periods of active interplay and long ejections.

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