On the action-minimizing triple collision orbits in the planar three-body problem

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Abstract:

In this talk, we study the shape of the limiting configuration of the action-minimizing triple collision orbits in the planar Newtonian three-body problem with arbitrary masses. For a given non-collinear initial configuration, the minimizing triple collision orbit is collision-free until a simultaneous collision, and its limiting configuration is the Lagrangian configuration with the same orientation as the initial configuration. For the collinear initial configuration, under a certain technical assumption, there exist two minimizing orbits. The limiting configurations of these orbits are the two opposite Lagrangian configurations.