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SATELLITE FORMATION MAINTENANCE AT LIBRATION POINTS UNDER THE RESTRICTED THREE-BODY SYSTEM

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Under three-body constraint, the gravitational disturbance at the libration point reaches a certain degree of equilibrium, so in theory, the spacecraft can maintain near the libration point with low loss. However, the spacecraft is not stable when disturbed at the libration point. These disturbances will make the spacecraft far away from the libration point, so it is necessary to adopt certain methods to maintain the orbit of the spacecraft. In this paper, with the help of Sliding mode variable structure control or Particle Swarm Optimization (PSO) algorithm, discussing the satellite formation maintenance at the libration point under the restricted three-body system. Based on the above purpose, in this paper will first deduce the restricted three-body system model, and use the earth-moon system as the template to deduce and calculate the position of the libration point. On this basis, determine the configuration and conditions of the satellite formation at the libration point, and introduce the perturbation factor. Finally, deduce the implementation of the above two control methods, and introduce into the satellite formation at the libration point to compare the control results .