

日地系统L2点Halo轨道绳系卫星编队动力学 (PDF)

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Title: Dynamics of tethered satellite formations on halo orbits near L2 point of Sun-Earth system

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关键词: [Hill限制性三体问题](#); [平动点周期轨道](#); [绳系卫星编队](#); [动力学仿真](#)

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摘要: 研究平动点附近周期轨道上旋转多体绳系卫星编队系统的非线性耦合动力学问题。编队系统为各卫星质量接近的轮辐状结构, 位于日地系统第二平动点附近, 整个系统的旋转保持系绳处于张紧状态, 建立Hill限制性三体问题的绳系编队系统动力学模型。针对处于留位阶段的典型对称三星编队, 在位于较大Halo轨道上无控制力作用的情况下, 进行母卫星轨道运动与系绳摆动耦合运动的动力学模拟, 分析轨道方向、卫星质量比、系绳长度以及初始旋转速度对编队系统整体稳定性的影响。

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