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# THE ANALYSIS TO AVOID POTENTIAL COLLISION FOR SMALL AND MICRO SATELLITES THROUGH ATTITUDE CHANGE

**Abstract**

With the rapidly increase of small and micro satellites in space, the risk of space collision is getting more and more serious. Most small and micro satellites cannot perform orbit maneuver, which makes when risky potential collisions were predicted, the satellite cannot avoid it through orbit maneuver. Once a collision happened, the break-up debris will threaten the rest satellites of the constellation seriously since they were in the same orbit zone. To solve this problem, a new research was brought forward in this paper. Since most small and micro satellites have the ability to control its attitude, the area to mass ratio of satellites can be changed through different attitude, forming atmosphere drag change and so the orbit position can be changed through a certain time period, and at last risky potential collisions can be avoid. An analysis model of orbit change through attitude was founded, the minimum distance and collision probability of risky collision was analyzed, and the effect to different orbit height was given. To satellites under 1200km height, this method of avoid risky potential collision through attitude change was feasibility.