

SMALL SATELLITE MISSIONS SYMPOSIUM (B4)
Access to Space for Small Satellite Missions (5)

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RESEARCH ON RAPID ACCESS TO SPACE OF FRACTIONATED SPACECRAFT MODULES

Abstract

The concept of fractionated spacecraft represents a novel architecture in traditional responsive space systems and attracts more and more attention from academia, industry and governments. The original concept behind the fractionated satellite was to deconstruct a monolithic satellite into modules that could be launched separately, but with significantly enhanced flexibility, robustness and responsive ability. In some sense, the fractionated spacecraft may be regarded as a revolutionary discovery in the history of space systems. This paper analyzes the concept of spacecraft fractionation and provides its effect on the mode change of multi-satellite launch. With the requirements of establishment or maintenance of these module clusters, the need for different launch vehicles is proposed. In addition, the possible layout of fractionated modules in launching mode and their orbital deployment are proposed. Finally, based on fractionated spacecraft, with the aim of responsive space construction, the corresponding developments planning of launch vehicles are drawn.