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A Study on Space Debris Generated by a Break-Up Event

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The study of object fragmentation is fundamental for the development of space missions, as the space around the Earth has an increase in space debris over time due to fragmentation events. To contribute to studies on fragmentation and debris propagation, this work is dedicated to the study of a fragmentation model based on an exponentially decreasing mass distribution and an isotropic distribution of velocity fields, so that the lower mass debris generated by fragmentation have higher speeds and vice versa. Once the initial conditions of the debris resulting from fragmentation are obtained, the trajectory of the debris cloud is propagated. Analyzes were carried out on the mass distribution and velocities of the debris, in addition to evaluating the behavior of debris propagation.

References
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Poster