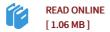# Modeling of Aerobrake Ballute Stagnation Point Temperature and Heat Transfer to Inflation Gas

By Parviz A. Bahrami

BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 22 pages. Dimensions: 9.7in. x 7.4in. x 0.1in.A trailing Ballute drag device concept for spacecraft aerocapture is considered. A thermal model for calculation of the Ballute membrane temperature and the inflation gas temperature is developed. An algorithm capturing the most salient features of the concept is implemented. In conjunction with the thermal model, trajectory calculations for two candidate missions, Titan Explorer and Neptune Orbiter missions, are used to estimate the stagnation point temperature and the inflation gas temperature. Radiation from both sides of the membrane at the stagnation point and conduction to the inflating gas is included. The results showed that the radiation from the membrane and to a much lesser extent conduction to the inflating gas, are likely to be the controlling heat transfer mechanisms and that the increase in gas temperature due to aerodynamic heating is of secondary importance. This item ships from La Vergne,TN. Paperback.

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