

Arc Jet Testing

A Short Course

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Abstract

This course will cover an overview of the Entry Systems and Technology Division (TS) at NASA Ames Research Center (ARC) and descriptions of the extensive arc jet testing complex managed within the branch. After a quick look at the Earth and Planetary Entry projects supported by TS, along with the inventions and software developed within the division, a description of the entry environments to which thermal protection systems (TPS) are exposed will be discussed. The question of “How do we insure TPS survival?” will be answered with descriptions of the various test facilities across the agency and beyond and their applicability. The Ames Arc Jet Complex will then be described, starting with how an arc heater works, adding in the associated infrastructure required to run an arc heater, and the capabilities of each of the test tunnels. Finally, examples of TPS test articles will round out the course.