

Research program:
“Wetting dependent models of liquid slug-vapour plug regimes in pulsating heat pipes”

Annex C

Department of Engineering and Applied Sciences

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Research project

The research is linked with the ASI AO2009 project on the experimental and numerical analysis of a Pulsating Heat Pipe for space applications. A lumped parameter code has already been developed and tested. A robust comparison of the numerical results with the experiments on ground and in microgravity was carried out showing extremely good agreement in case of a capillary pulsating heat pipe. The grant is given to extend such simulation to a Hybrid Heat Pipe, which is working as a capillary system only in microgravity environment. Moreover the implementation of a sub-model considering the effect of wettability of the internal surfaces both for the fluid-dynamics and for the heat transfer effects is foreseen.