

Keep-in-Touch meeting (July 22, 2026)

The road towards Hypersonic flight: Putting Portugal on the map

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On the past 19th November 2025, an hypersonic flow of about 8km/s was achieved in the Hypersonic Plasmas Laboratory. This was the first time that a man-made object reached velocities (much) above 5 times the speed of sound in Portuguese soil. This historical milestone is the crowning achievement of 15 years of research & development on hypersonic plasmas at IPFN, under funding from the European Space Agency. On this day, the European Shock Tube for High Enthalpy Research (ESTHER) produced its first operational test, spearheading Portugal into the hypersonic age, where hypervelocity plasmas will be routinely produced and studied. This facility will provide new insights into the physical-chemical processes for these rather exotic flowing plasmas, and will be an essential tool for ensuring European independence of access to Space.

This talk will provide insight on this large-scale scientific project, which yielded the (to-date) largest space-research facility located in Portugal. We will discuss why the existing scientific ecosystem (a large-scale, highly-prestigious institution - IPFN - within a large-scale, highly-prestigious university - IST-) was key to the facility inception, both at the scientific and administrative level. We will further discuss the successes, failures, and lessons learned on navigating the administrative, socioeconomical and geopolitical hurdles of a medium-scale southern country of the European Union during these last 15 years. Finally, important lessons which might inform present and future scientific policies at Local (IST/IPFN), National and European level will be discussed.