



## ESA's Cosmic Vision Titan and Enceladus mission (TandEM)

**A. Coustenis** (1), J.-P. Lebreton (2), The TandEM Consortium (3)

(1) LESIA, Paris-Meudon Observatory, 5, place Jules Janssen, 92195 Meudon Cedex, France;

(2) ESA/ESTEC, 2201 Noordwijk, The Netherlands; (3)

<http://www.lesia.obspm.fr/cosmicvision/tandem/>;

(Athena.coustenis@obspm.fr / Fax: +33145072801 / Phone: +33145077720)

TandEM was proposed as an L-class (large) mission in response to ESA's Cosmic Vision 2015-2025 Call, and selected for further studies, with the goal of exploring Titan and Enceladus. The mission concept is to perform *in situ* investigations of two worlds tied together by location and properties, whose remarkable natures have been partly revealed by the ongoing Cassini-Huygens mission. These bodies still hold mysteries requiring a complete exploration using a variety of vehicles and instruments. TandEM is an ambitious mission because its targets are two of the most exciting and challenging bodies in the Solar System. It is designed to build on but exceed the scientific and technological accomplishments of the Cassini-Huygens mission, exploring Titan and Enceladus in ways that are not currently possible (full close-up and *in situ* coverage over long periods of time). In the current mission architecture, TandEM proposes to deliver two medium-sized spacecraft to the Saturnian system. One spacecraft would be an orbiter with a large host of instruments which would perform several Enceladus flybys and deliver penetrators to its surface before going into a dedicated orbit around Titan alone, while the other spacecraft would carry the Titan *in situ* investigation components, i.e. a hot-air balloon (Montgolfière) and possibly several landing probes to be delivered through the atmosphere.

**Ref:** Coustenis, A., and 154 co-authors, 2008. TandEM: Titan and Enceladus mission. *Astrophysical Instruments and Methods*, in press.

**Web site :** <http://www.lesia.obspm.fr/cosmicvision/tandem/index.php>