



Sun & Planets future space missions

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ASI Chief Scientist

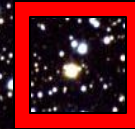
International School of Space Science
L'Aquila
6-10 June 2016

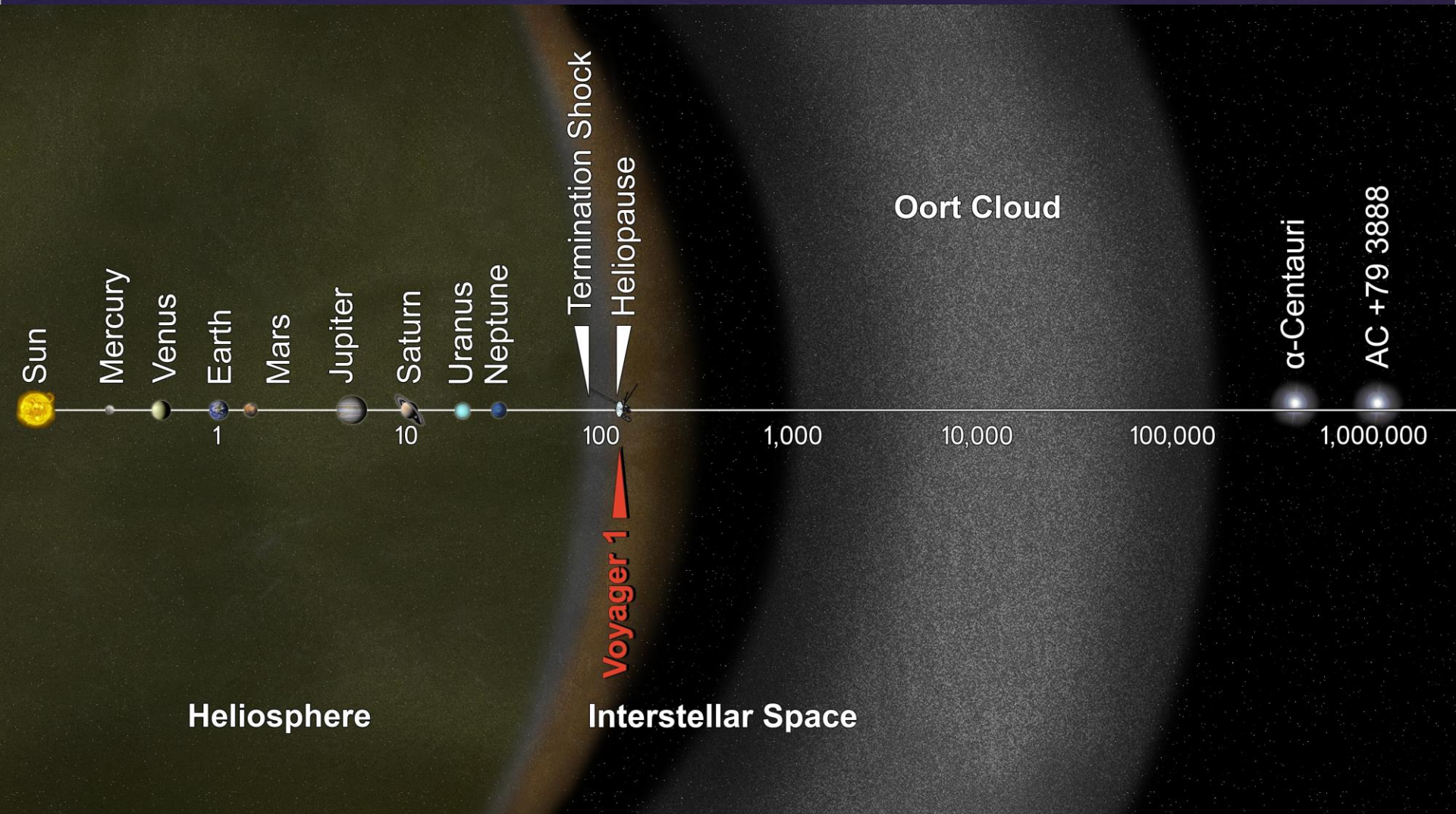




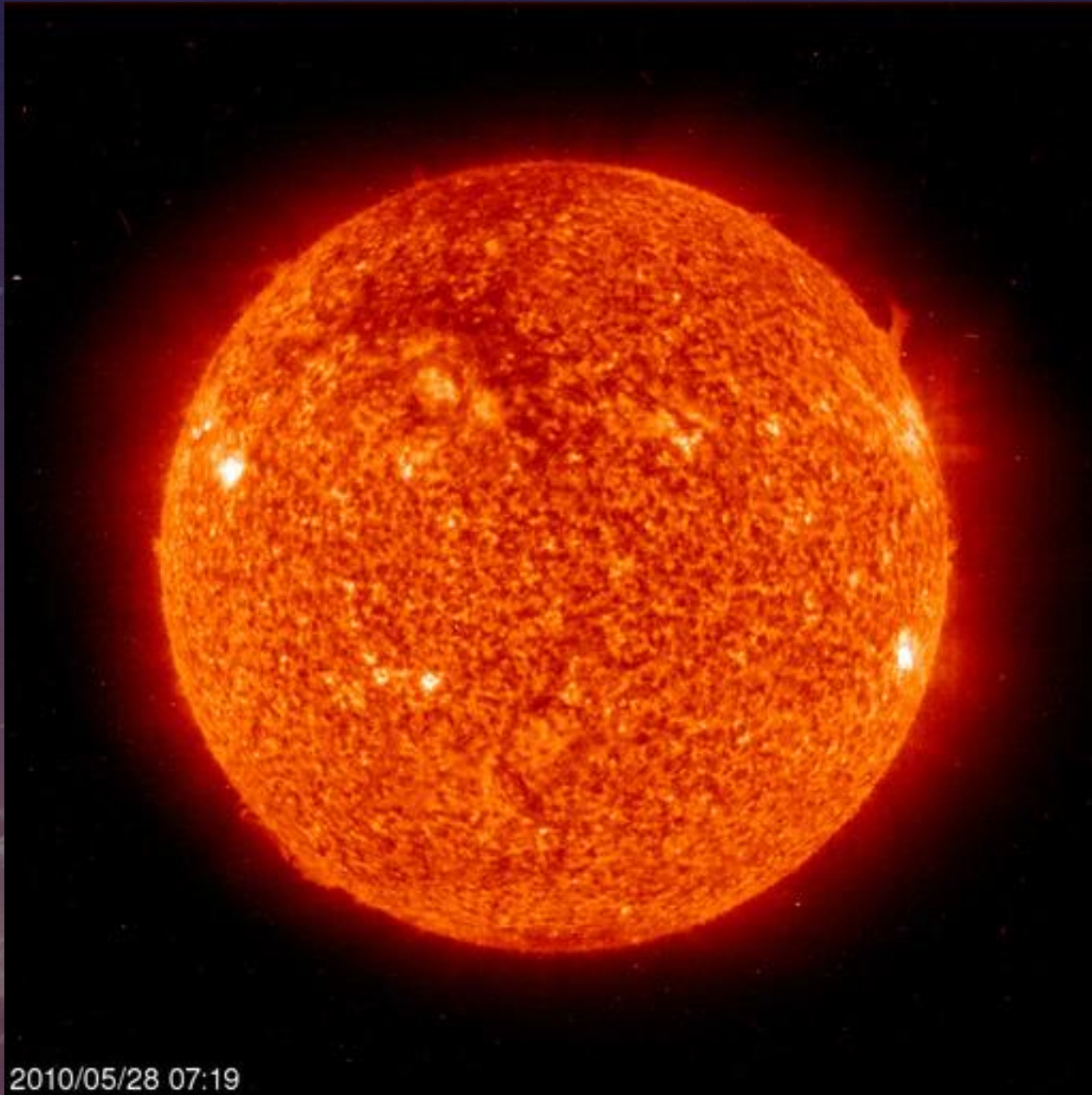
1 million light years to
start to search for our
Sun

100 Billions Km: the Solar System may be seen





The Sun: our star



2010/05/28 07:19

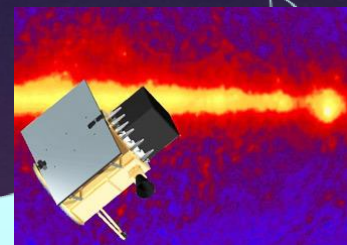
Solar System

Agenzia Spaziale Italiana



Science missions are observing or exploring major and minor bodies of the Solar System and its borders, with the Voyagers

Some major steps in ASI science program



2007 Agile

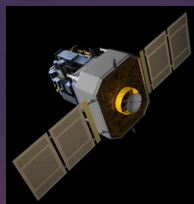
2005 MRO



1997
Cassini-
Huygens



1992 Lageos2

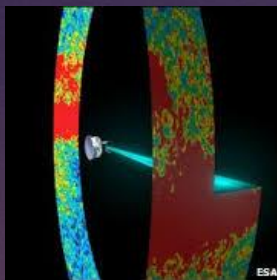


1995 SOHO

1996 SAX

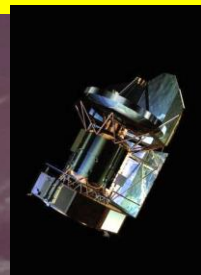


Some major steps in ASI science program



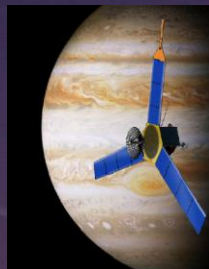
2007

Dawn



2009

Herschel
Planck



2011

Juno
AMS



2014
GAIA



2012

Lares on Vega
NUStar



2016
Exomars

2015 Lisa-
PF

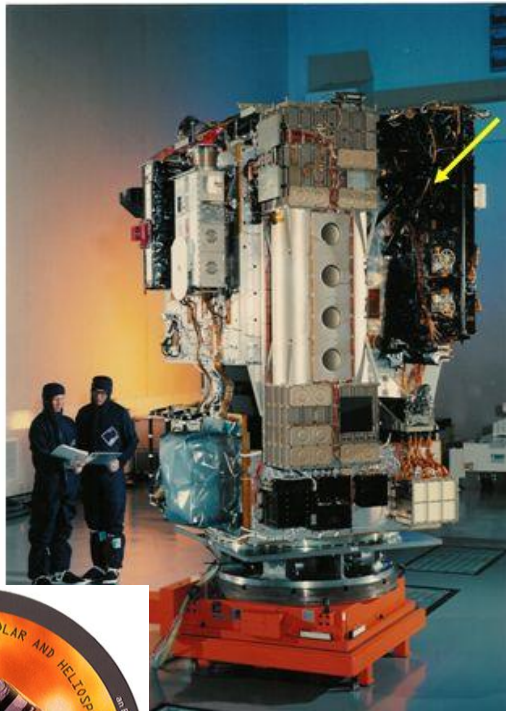


Some years ago!

Disegno e realizzazione di nuova strumentazione SOHO - UltraViolet Coronagraph Spectrometer



studio del vento solare nell'atmosfera del
Sole: origine ed accelerazione del vento



Concetto, progettazione, sviluppo, integrazione,
calibrazione, osservazioni, software per analisi dati,
interpretazione delle osservazioni, archiviazione.
(Agenzia Spaziale Italiana (ASI), INAF, Alenia Spazio,
Officine Galileo)

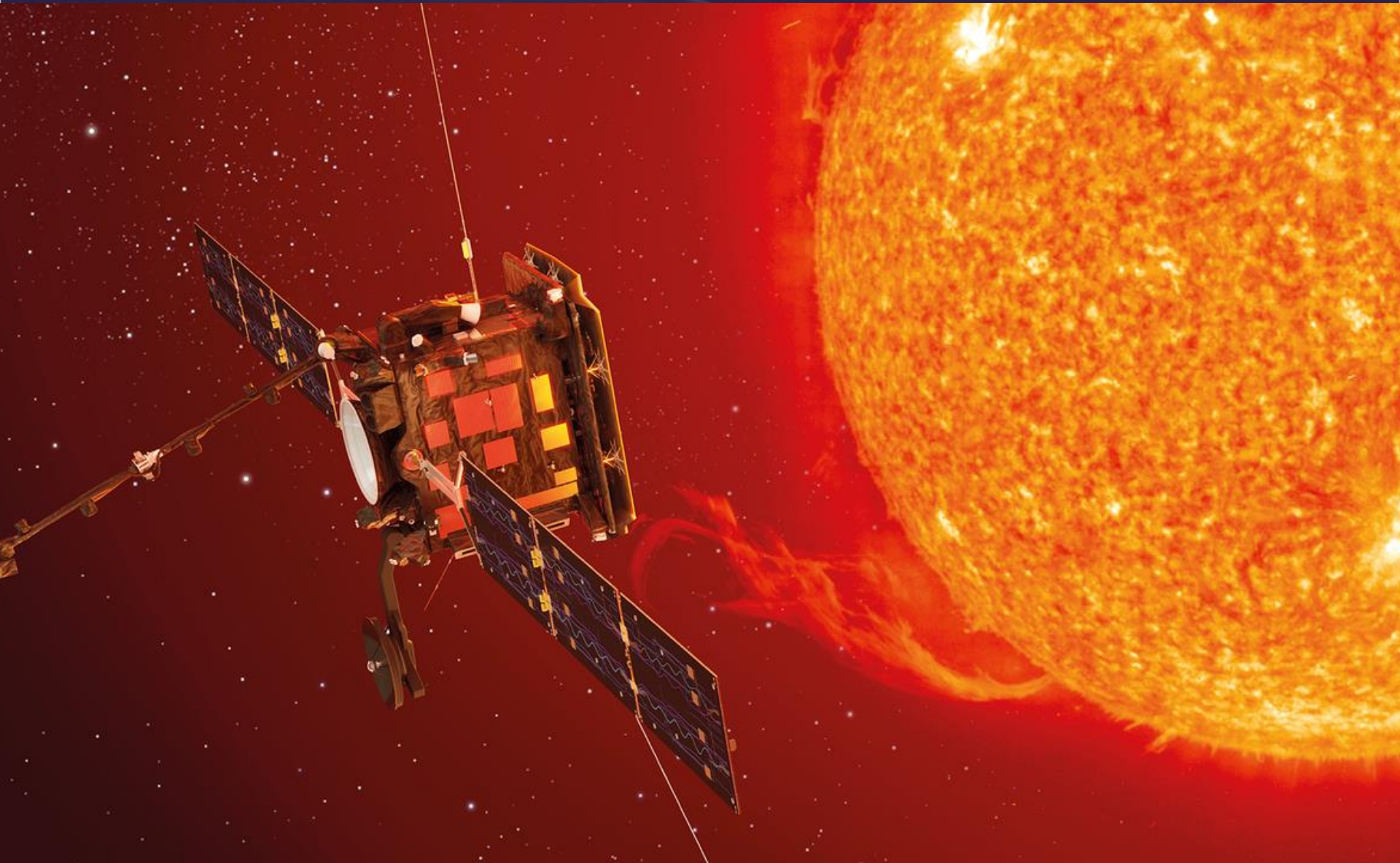


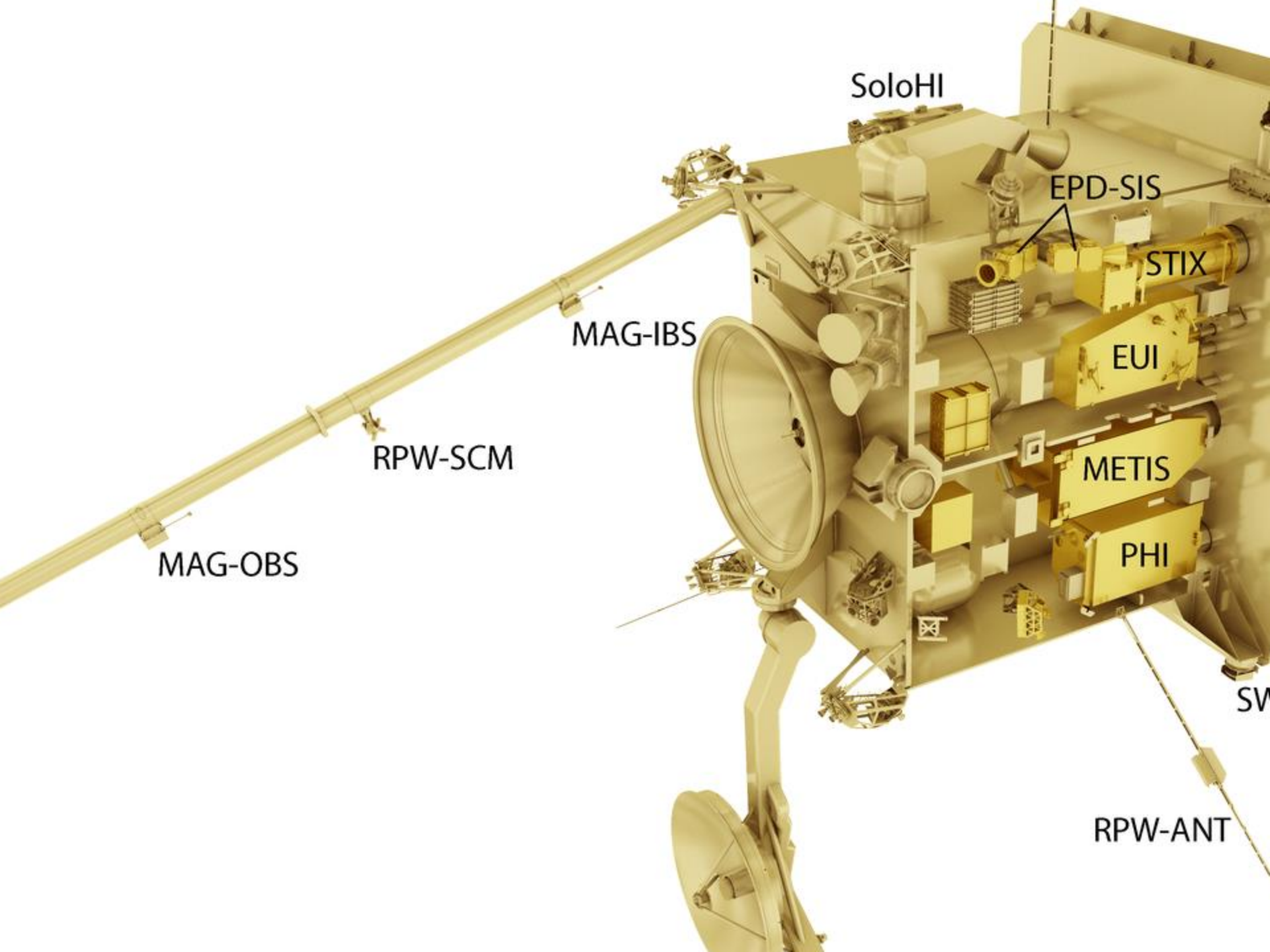
ESA Program

Horizon 2000+ almost completed, Cosmic Vision is in progress:

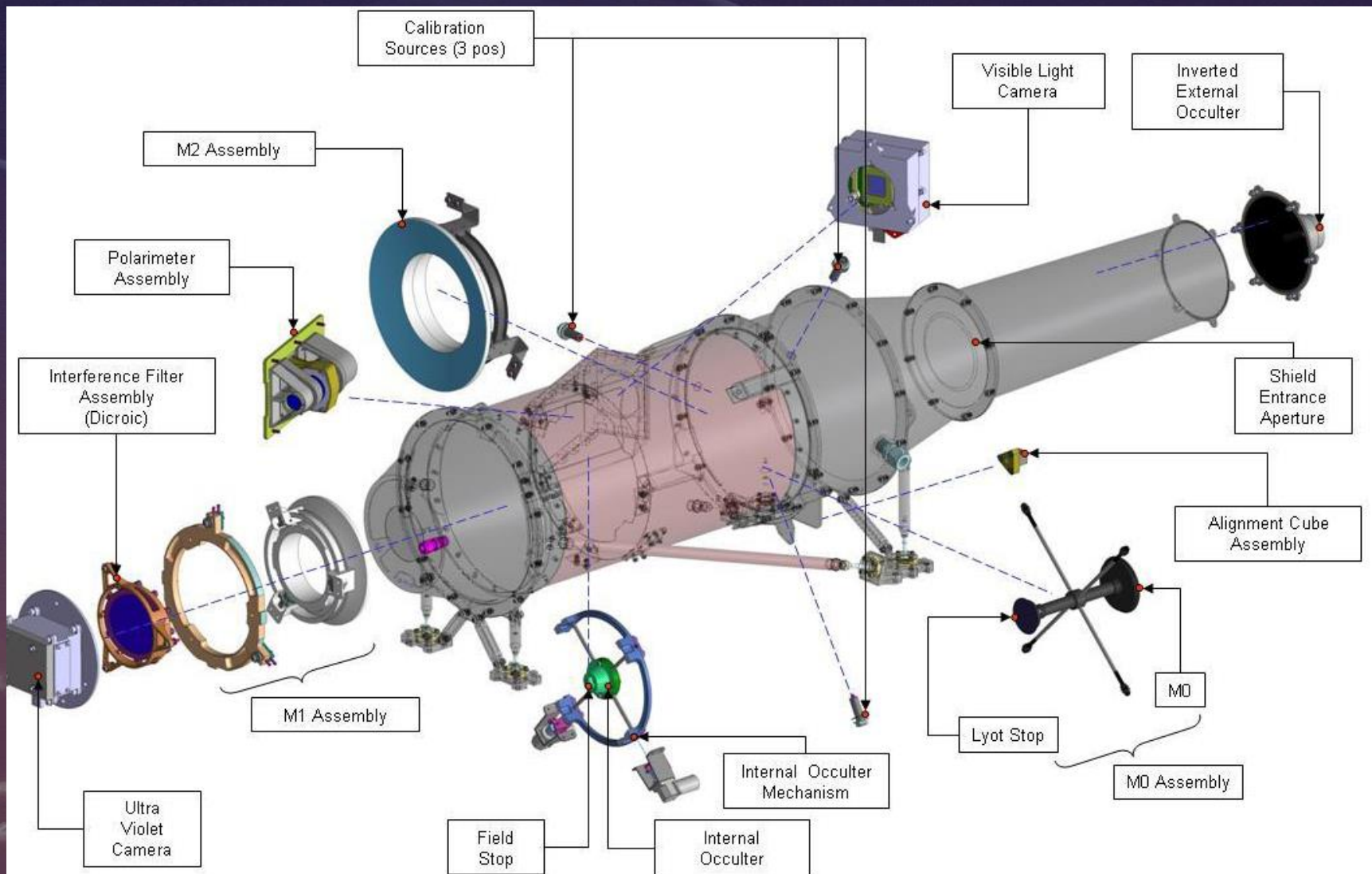
- Bepicolombo launch scheduled on 2018 (4 PI + 4 collaborations)
- M1 Solar Orbiter launch 2018 (1 PI e 1 collaboration)
- M2 Euclid Dark Energy launch 2020 (Co-leadership)
- M3 Plato launch 2024 (Co-leadership)
- Small : Cheops launch 2017
- L1 JUICE launch 2022 (3 PI e 1 Co-PI)
- L2 Athena launch 2028
- L3 e-Lisa launch 2034

SolarOrbiter





METIS



M4 Selection

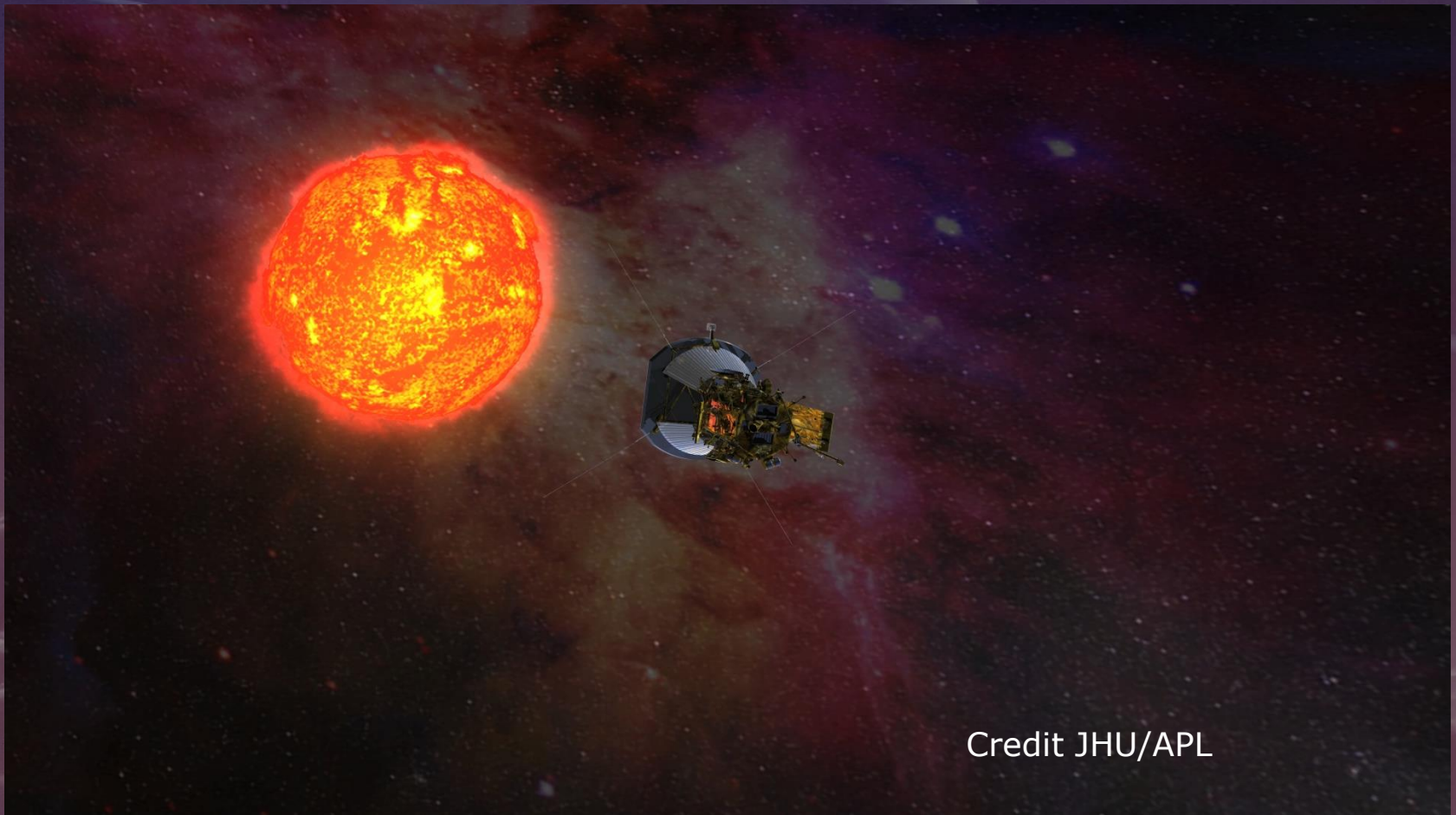
3 mission proposals selected on June 2015 as candidates for a launch in 2025:

- Exoplanets : **ARIEL** Atmospheric Remote-Sensing Infrared Exoplanet Large-survey
- Plasma Physics : **THOR** Turbulence Heating Observer
- X-ray polarimetry : **XIPE** X-ray Imaging Polarimetry Explorer

M 5 Call issued in May

NASA

- Solar Probe the closer to the Sun: launch 2018



Credit JHU/APL

NASA Next

Discovery AO 2015 for planetary mission selection, 5 proposals in competition:

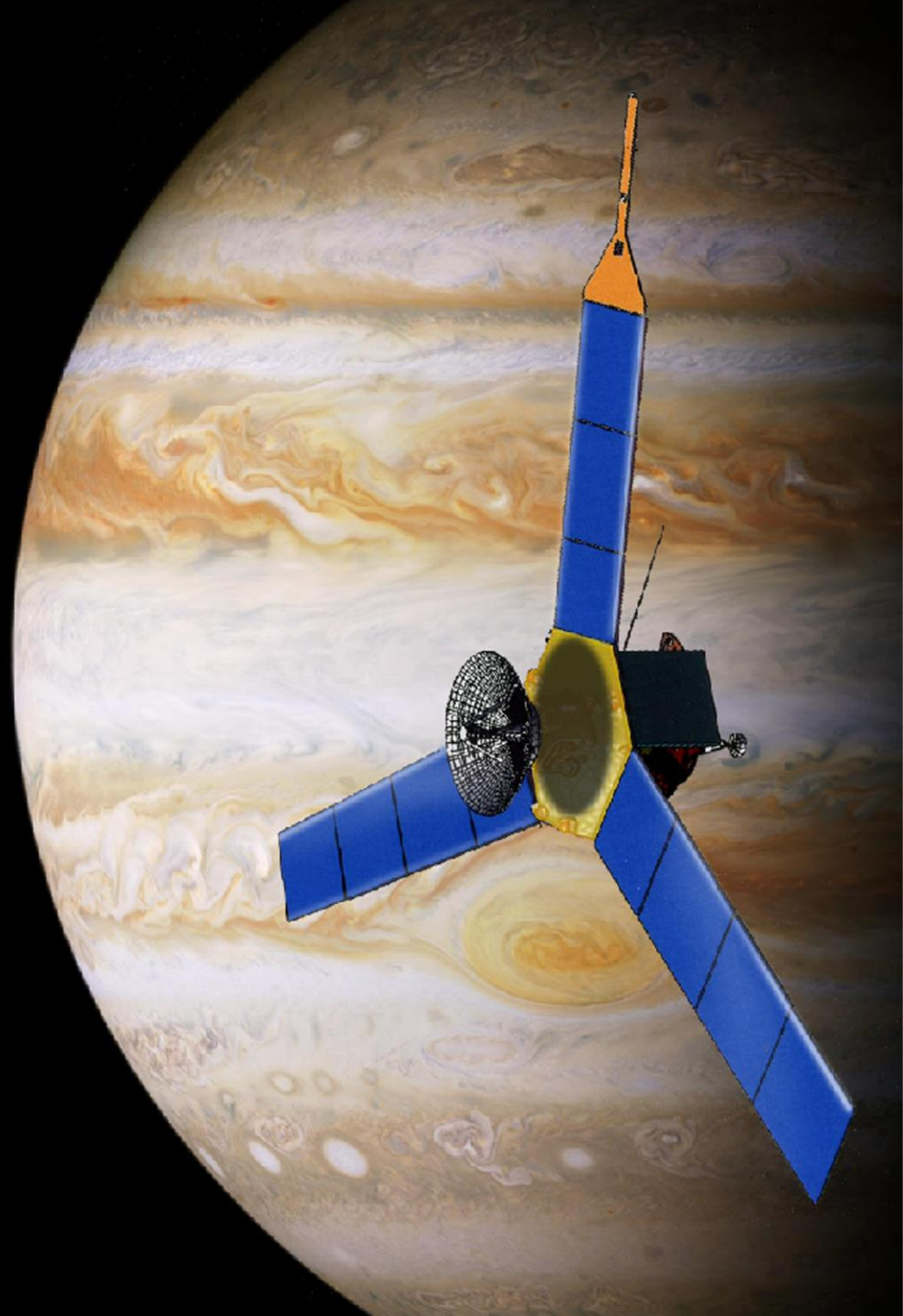
- VERITAS: High resolution Radar Mapping and interior science of Venus
- Psyche: rendezvous with a single asteroid, (16) Psyche
- Lucy: reconnaissance mission to three Trojan asteroids, at least one of which is binary
- DAVINCI study the chemical composition of Venus' atmosphere during a 63-minute descent
- NEOCam: hunt for undiscovered asteroids in the space close to Earth.

NASA next

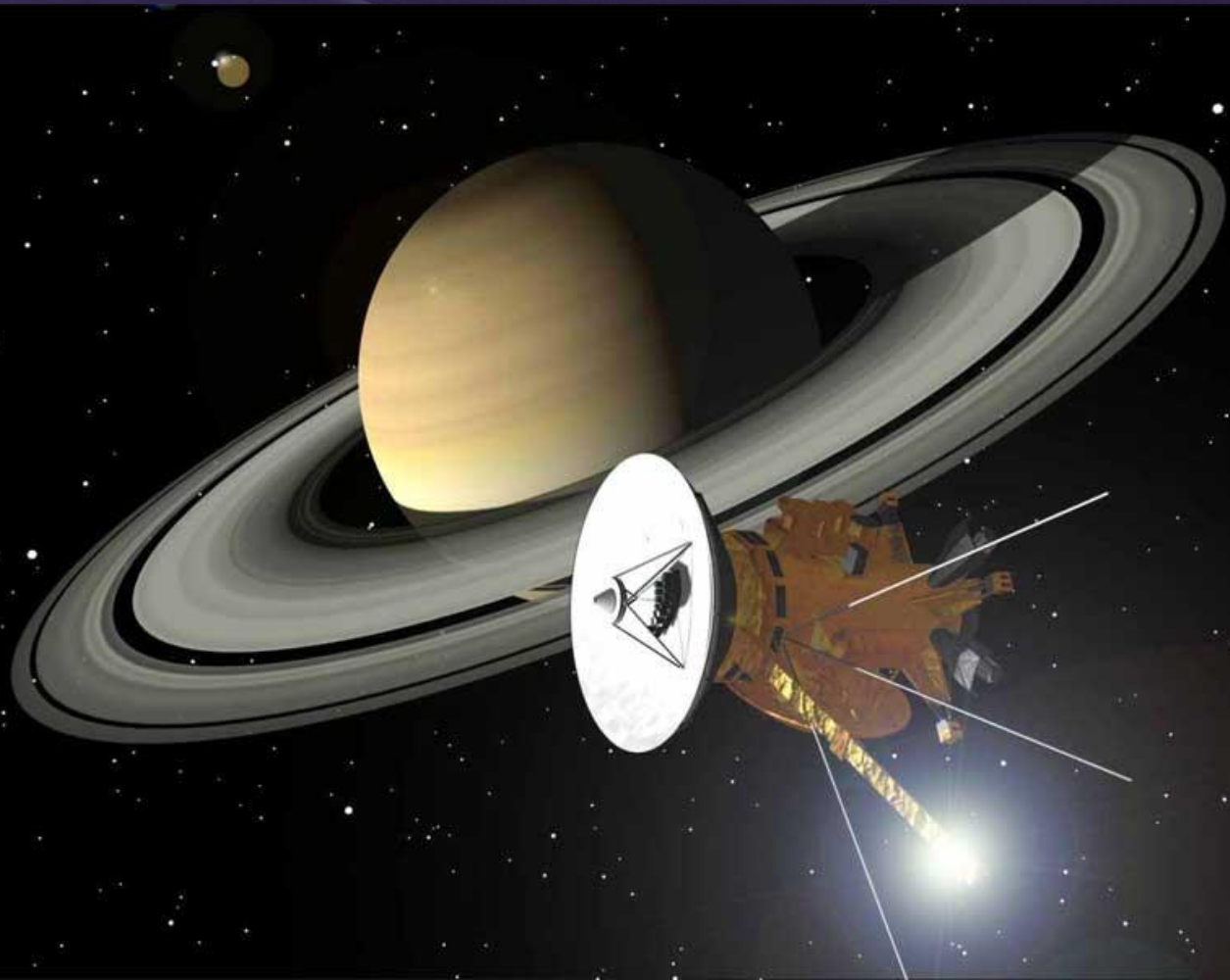
- Next call for New Frontiers planetary missions expected in Autumn
- Calls for heliophysics and astrophysics science areas, SMEX, expected late summer:
- SMEX missions
- Launch June 2017: The Ionospheric Connection Explorer (ICON)
- Launch August 2017: The Transiting Exoplanet Survey Satellite (TESS)

Juno will arrive at Jupiter
on July 4th 2016

Stay tuned



September 2017
Do not miss the
Gran Finale for
the Joint NASA-
ESA-ASI mission
to explore Saturn
and its Moons



Conclusions

- The current situation for the Solar System science missions is quite positive with all, except Neptune and Uranus, the planets explored
- Two important new missions operative within 2018, Solar Probe and Solar Orbiter plus other smaller missions
- New ideas and proposals expected for ESA's M5 and NASA's Smex AO.
- Also the use of Stratosphere for heliophysics studies has to be envisaged