

United Nations/China 2nd Global Partnership Workshop on Space Exploration and Innovation

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The ESA Scientific Program

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United Nations/China 2nd Global Partnership Workshop on Space Exploration and Innovation

23.11.2022, Haikou, China / virtual



SOLAR SYSTEM EXPLORERS





COSMIC OBSERVERS





ESA Missions: Refereed Publications





Most papers ever in 2019-2022 (>3500)

About half of these were from Gaia

Strong positive trend with doubling time ~8yr

Pandemic caused some slow-down, but has recovered

~12% of worldwide "market share", including all ground based and theoretical astrophysics (16% including partner missions).

Citation impact strongly increasing.

Gaia unravels star formation on the Local Bubble





Zooming into the Sun: High-resolution Observation esa Near Perihelion 0.29 AU @ 12.10.2022

0-13T13:00:00

22-09-05T00:00:55

ESA-CAS joint SMILE Mission

First 50:50 joint mission with China, a pathfinder for future endeavors

Magnetosheath/ Magnetopause 10x10^o Cusp

UVI FOV

Aurora

Highly Elliptical Orbit 5000 km x 19 RE

SXI FOV Comms 16x270

Investigate the dynamic response of the Earth's magnetosphere to the solar wind

esa

More JWST Excitement

Neptune, Jupiter and Titan with JWST





HST

JWST NIRCAM

JWST MIRI



Projects in Preparation

Falcon-9 launch Q3 2023 agreed Euclid

esa

JUICE

<image>

ATHENA and LISA: Sound to Cosmic Movies





European Space Agency

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Strategic Objectives: Vøyage 2050 sets sai

Moons of the giant planets

From temperate exoplanets to the Milky Way

15

New physical probes of the early Universe

Possible Technology development: cold atom interferometry, X-ray interferometry, new power and heat sources, cryogenic sample return, solar sails **Member State provision of payloads** is a key enabler and will use a new paradigm developed with the Member States in preparation for CM22

Synergies between ESA and US Strategic Plans





- Uranus Orbiter/Atmospheric Probe
- Enceladus Orbi-Lander

- Interstellar Probe ???
- → L4 could be ESA-led Enceladus mission with NASA participation L5 could be ESA-only GAIA-NIR ESA contribution to Uranus mission (e.g. atmospheric probe like Cassini/Huygens) ESA Contributions to Astrophysics and Heliophysics flagship missions



Thank you very much!