

**52<sup>ND</sup> SESSION OF THE STSC – UN COPUOS  
FEBRUARY 6, 2015**



*The Italian activities and contributions  
to the ISS*

**SPACE MATTERS**

UNITED NATIONS OFFICE FOR OUTER SPACE AFFAIRS  
Bringing the benefits of space to humankind



**Vittorio Cotronei – Italian Space Agency - 52nd Session of the STSC – UN COPUOS**

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## ***THE ITALIAN ACTIVITIES AND CONTRIBUTIONS TO THE ISS***



***ASI IS THE ITALIAN GOVERNMENTAL ENTITY  
THAT COORDINATES ALL ITALY'S EFFORTS IN  
THE SPACE SECTOR***

***ASI HAS THE MANDATE TO REPRESENT ITALY  
IN THE EUROPEAN SPACE AGENCY***



# ***ASI ACTIVITIES ON ISS & EXPLORATION***



***ASI MANAGES ACTIVITIES AND PROJECTS, AMONG  
OTHERS, RELATED TO:***

***Human Space Infrastructures***

***Research in Microgravity***

***Exploration***

***(human exploration at national level, human  
and robotic exploration at European level)***



# *THE ITALIAN PARTECIPATION TO THE ISS*



*ITALY HAS A PRIVILEGED, TWO-LANE, ACCESS TO  
ISS:*

***MULTILATERAL***  
*Through the  
participation to  
ESA optional  
programmes*



***BILATERAL***  
*Through the  
Memorandum of  
Understanding  
with NASA*



# *THE ITALIAN PARTECIPATION TO THE ISS*



## *MULTILATERAL LEVEL*



Italy is the 3rd contributor to  
ESA programmes of  
development and exploitation

Italy is the 2nd contributor  
to ESA programme  
**ELIPS 4**





# THE ITALIAN PARTECIPATION TO THE ISS



## BILATERAL LEVEL



As per the MPLM MoU, ASI provided to NASA three Multi-Purpose Logistics Modules (MPLM) designed to be transported in the Shuttle cargo bay.

Additionally, the MPLM FM1 (Leonardo) was modified and transported to the ISS before the Shuttle retirement, to become the Permanent Multipurpose Module (PMM).





## ***THE ITALIAN PARTECIPATION TO THE ISS***



### ***BILATERAL LEVEL***

**In exchange for the provision of these technological assets and the relevant support, ASI has acquired from NASA the right to:**

- ✓ **a share of 0,85% of the NASA pressurised user accommodations.....**
- ✓ **Italian astronaut flight opportunities during the life of the program**

**The exploitation of these rights is subject to the definition and execution in coordination with NASA of the “ASI Utilization Plan”.**

**The Plan and its yearly updatings are submitted to the approval of a joint ASI/NASA Executive Committee.**



# THE ITALIAN PARTECIPATION TO THE ISS



**NODE 2 AND 3**

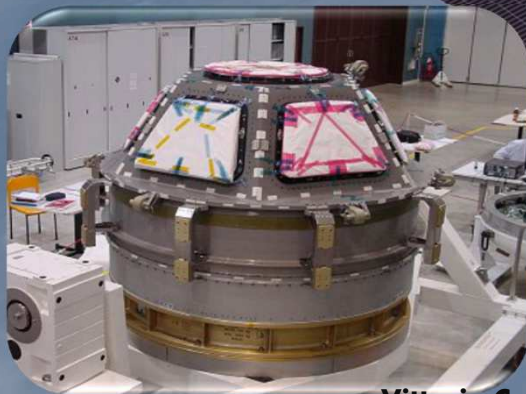


**More than 50% of  
pressurized volume has  
been built in Italy  
(TAS-I)**

**COLUMBUS/ATV**



**CUPOLA**



**MPLM/PMM**







# **ASI GOALS**



***ASI OBJECTIVES FOR HUMAN SPACE INFRASTRUCTURES AND EXPLORATION, AS ADDRESSED BY THE CURRENT 3-YEARS PLAN***

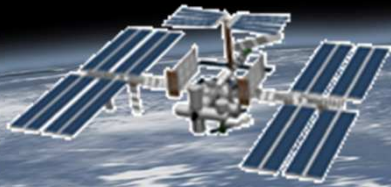
***ARE:***

**1**

Maximize the ISS utilization activities and returns both at bilateral and multilateral level, in the aim to optimize the large investments made in the past

**2**

Contribute to the development of technology innovations for the future international programs of exploration



## ***THE ITALIAN PARTECIPATION TO THE ISS***



- In 2001, ASI establishes the first ISS Utilization Program including a national research plan and development of relevant payloads
  
- Since then, three phases
  - ✓ Early Utilization
    - APCF (w. ESA), M. Polo Mission (2002), ALTCRISS (w. ESA)
  - ✓ Facilities
    - HPA, ALTEA, ELITE-S2, MDS, BIODON, PLEGPAY (w. ESA)
  - ✓ Research complements to Italian astronauts flights
    - Esperia Mission (2007), DAMA Mission (2011),  
VOLARE Mission (2013), FUTURA Mission (2015)



# ITALIAN ASTRONAUTS FLIGHT



Since 1992 6 astronauts  
of Italian nationality  
have flown into Space  
and one is currently on  
board the ISS....



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# ISS Utilizzazione



## FUTURA Mission

In space right now



**Samantha Cristoforetti**



**Italia - Europe**



**ESA** (European Space Agency)



**Expedition 42**

**ISS** International Space Station

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# ***FUTURA MISSION RESEARCH ON BOARD***



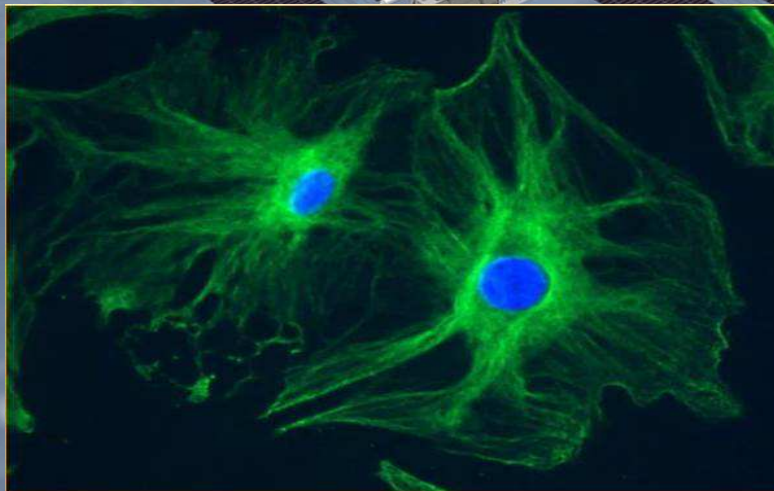
**Blind & Imagined**

**Wearable Monitoring**

**Orthostatic Tolerance**

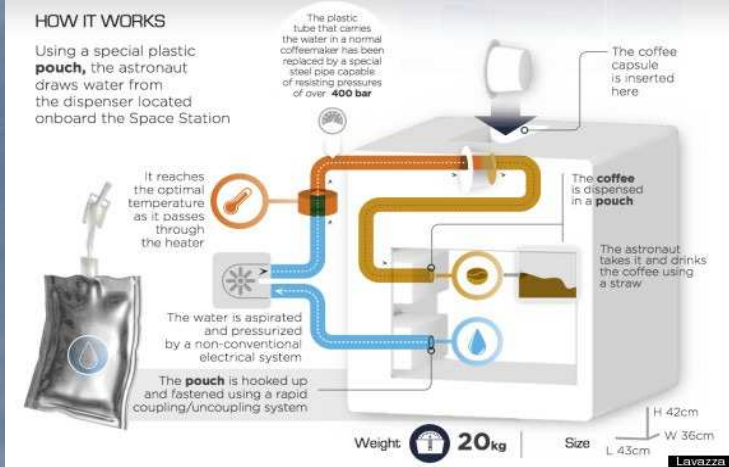
**Bone-Muscle Check**

**Drain Brain**



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# FUTURA MISSION RESEARCH AND EDUCATION



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# ACCOMPLISHMENTS



- **A total of 66 investigations (including the Futura mission experiments )**
  - **Mainly in the field of Life Science (Human Research, Biology)**

## HUMAN RESEARCH

**CHIRO**  
**BMI (ESA)**  
**HPA (3)**  
**ALTEINO**  
**ALTEA CNSM**  
**ELITE-S2 (2)**

## TECHNOLOGY

**VEST**  
**PLEGPAY (ESA)**  
**APE**  
**ALTEA SHIELD (ESA)**

## PHYSICAL SCIENCE

**ALTEA DOSI (NASA)**  
**FOAM**  
**ENOS**  
**ALTEA GAP (NASA)**  
**BIOKISS (2#7)**

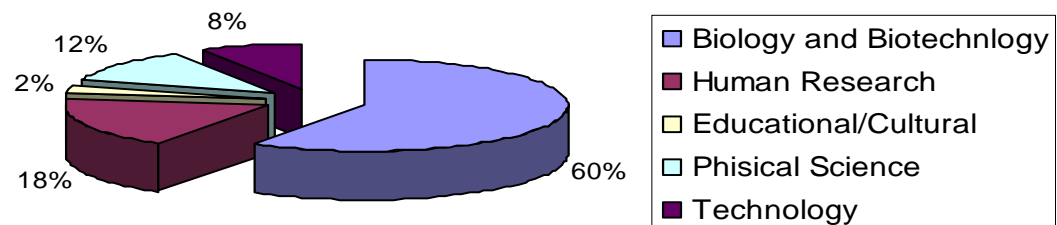
## EDUCATION

**SPORE**

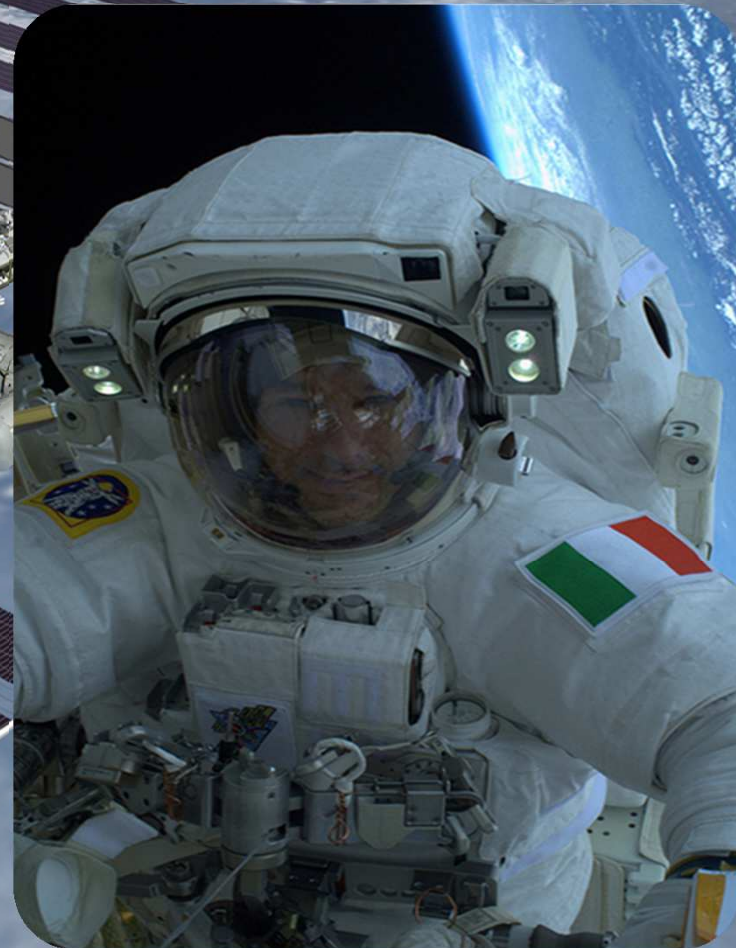
## BIOLOGY

**APCF (ESA)**  
**FRTL-5**  
**MDS (20)**  
**NIGHT VISION**  
**VIABLE**  
**BIOKISS (5#7)**

## Investigations vs Disciplines



***THANK YOU  
FOR YOUR ATTENTION***



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