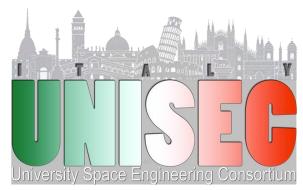
# **UNISEC ITALY**



Presenter: Prof. Fabio Santoni





Kamchia (Bulgary), 20-23 October 2016





# UNISEC Italy new Local chapter

During the 3<sup>rd</sup> UNISEC-Global meeting in Tokyo (July 2015), **Italy was accepted as new local chapter** 



UNISEC and UNISON Italy
were established by
Sapienza – University of Rome
and Alma Mater Studiorum,
University of Bologna





#### UNISEC Italian Consortium

National Point of Contact: Prof. Fabio Santoni

#### **Universities Representatives**

• Rome: Prof. Santoni

Bologna: Prof. Tortora

• Turin: Prof. Corpino











Establishment of the Italian UNISEC Local Chapter

September

Start of UNISEC/UNISON Italy activities

October

Polytechnic of Turin joined UNISEC Italy





Establishment of the Italian UNISEC Local Chapter

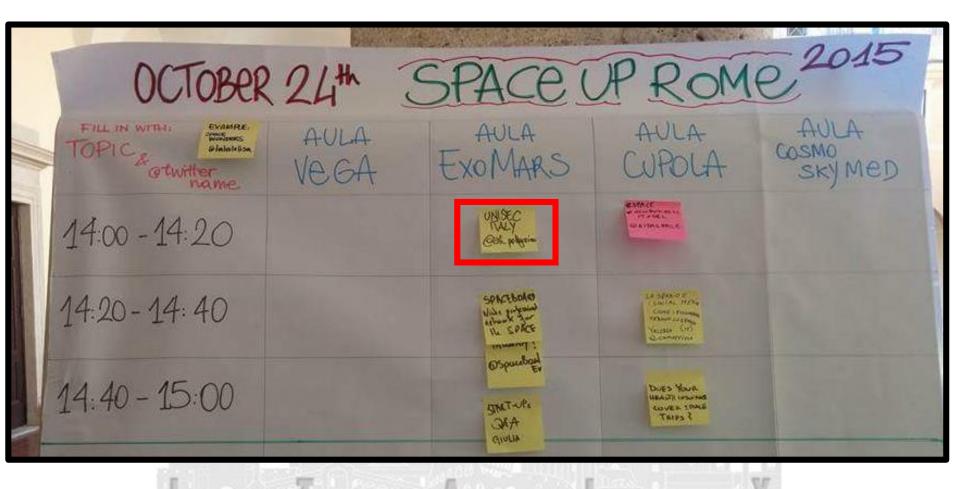
#### September

Start of UNISEC/UNISON Italy activities

#### October

- Polytechnic of Turin joined UNISEC Italy
- SpaceUP Rome, the 1<sup>st</sup> Italian «Unconference»

# SpaceUP Rome, the 1st Italian «Unconference»



# SpaceUP Rome, the 1st Italian «Unconference»





Establishment of the Italian UNISEC Local Chapter

#### September

Start of UNISEC/UNISON Italy activities

#### October

- Polytechnic of Turin joined UNISEC Italy
- SpaceUP Rome, the 1<sup>st</sup> Italian «Unconference»

#### December

SGAC European Student Workshop (Padua)

# SGAC European Student Workshop (Padua)





Establishment of the Italian UNISEC Local Chapter

#### September

Start of UNISEC/UNISON Italy activities

#### October

- Polytechnic of Turin joined UNISEC Italy
- SpaceUP Rome, the 1<sup>st</sup> Italian «Unconference»

#### December

- SGAC European Student Workshop (Padua)
- 2<sup>nd</sup> Annual Space Debris Student Opportunities Workshop (Sapienza – University of Rome)

# 2nd Annual Space Debris Student Opportunities Workshop







# 2<sup>ND</sup> SPACE DEBRIS STUDENT OPPORTUNITIES WORKSHOP

VENERDÌ 18 DICEMBRE 2015 - ORE 9:30 - 13:00

AULA DIDATTICA DEL DIAEE VIA EUDOSSIANA 18, ROMA

# 2nd Annual Space Debris Student Opportunities Workshop







 Workshop about «The REXUS/BEXUS Programme: hands-on opportunity for Aerospace Students» (Sapienza – University of Rome)

# «The REXUS/BEXUS Programme: hands-on opportunity for Aerospace Students»





## THE REXUS/BEXUS PROGRAMME:

HANDS-ON OPPORTUNITY FOR AEROSPACE STUDENTS

VENERDI' 15 LUGLIO 2016 – ORE 10

**SALA DEGLI AFFRESCHI** 

FACOLTA' DI INGEGNERIA CIVILE E INDUSTRIALE UNIVERSITA' "LA SAPIENZA" VIA EUDOSSIANA 18 - ROMA







 Workshop about «The REXUS/BEXUS Programme: hands-on opportunity for Aerospace Students» (Sapienza – University of Rome)

October

4<sup>th</sup> UNISEC Global Meeting at Kamchia (Bulgaria)



 Workshop about «The REXUS/BEXUS Programme: hands-on opportunity for Aerospace Students» (Sapienza – University of Rome)

October

4<sup>th</sup> UNISEC Global Meeting at Kamchia (Bulgaria)

November

SpaceUP Milan, the 2<sup>nd</sup> Italian «Unconference»

# SpaceUP Milan, the 2nd Italian «Unconference»





# SpaceUP Milan, the 2nd Italian «Unconference»

#### MAIN SPONSORS:





















 Workshop about «The REXUS/BEXUS Programme: hands-on opportunity for Aerospace Students» (Sapienza – University of Rome)

#### October

4<sup>th</sup> UNISEC Global Meeting at Kamchia (Bulgaria)

#### November

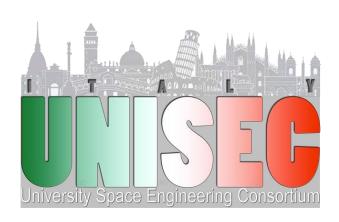
SpaceUP Milan, the 2<sup>nd</sup> Italian «Unconference»

#### December

 3<sup>rd</sup> Annual Space Debris Student Opportunities Workshop (Sapienza – University of Rome)



# **UNISON Italy**













# UNISON Italy Student Representatives



MARCELLO VALDATTA

Student representative for University of Bologne





ALICE PELLEGRINO

Italian representative for UNISEC Italy / Student representative for "La Sapienza", University of Rome





**LUIGI MASCOLO** 

Student representative for Polytechnic of Turin



# **UNISON** Working Groups



**REXUS/BEXUS Team** 



**CubeSat Team** 

**REXUS/BEXUS Team** 

**CANSAT Team** 



**CubeSat Team** 

**Rocket Team** 

Interplanetary
Mission Design Team



### **BEXUS Team: STRATONAV Experiment**













RYMDSTYRELSEN Swedish National Space Board





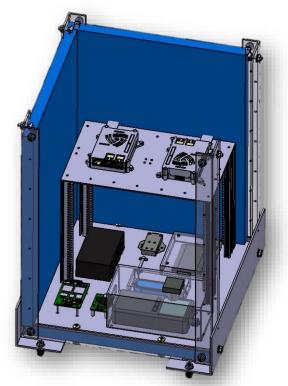






### **BEXUS Team: STRATONAV Experiment**

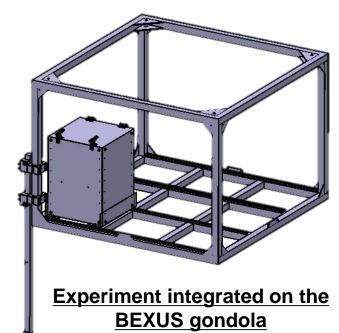




**CAD Model** 

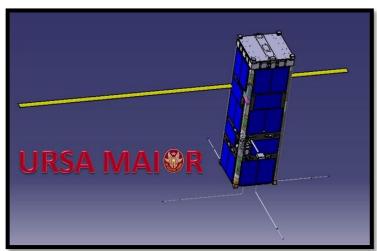


Flight Model





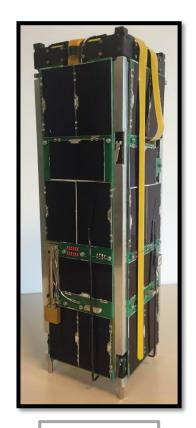
#### **CubeSat Team: URSA MAIOR 3U CubeSat**







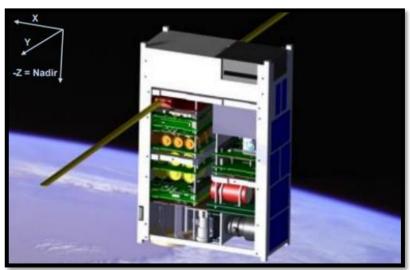
**Main Objective**: to use a network of 50 CubeSats to study in situ the main features of the lower thermosphere (90-320 km)



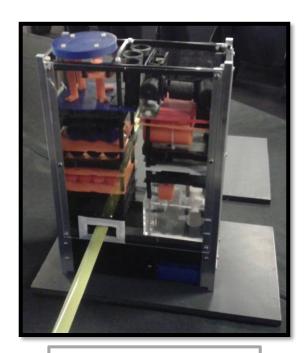
Flight Unit



### **CubeSat Team: IKUNS 6U CubeSat**



University nanosatellite developed in support of the Italian-Kenyan cooperation in space activities, part of an agreement between Sapienza – University of Rome and the Italian and ASI



**3D-printed Mock-Up** 



Collaboration with SASA to organise the the <u>Space</u>
<u>Systems Laboratory</u> during the third year of the
Bachelor's course of Aerospace Engineering at Sapienza,
University of Rome (<u>3cfu</u>) managed by Prof. Fabrizio
Piergentili







## **CANSAT Team**:



- Mission architecture study
  - Design of the prototype
- Design of the re-entry system
- Analysis of the main subsystems







#### **Interplanetary Mission Design Team:**





#### Additional Students activities

Asteroid Express addresses to ASTEROID MINING, one of to the Solar System challenges proposed for the NASA Space Apps Challenge 2016





## Additional Students activities

# HORUS

HORUS cluster of four 6U CubeSats combines nadir and offnadir sampling capabilities in order to provide a imagery in different view angles in different spectral bands (RGB and NIR)



# Additional Students activities





The designed SSDC (Sailing System for CubeSat Deorbiting) allows the deorbiting of a CubeSat by exploiting the free and unused volume offered by the standard solar panels without changing the nominal configuration of main subsystems

# UNISEC Italy Future Action Plan

- We are currently working in order to:
  - Improve the UNISON activities in Rome, Bologna and Turin
  - Create a regional chapter for UNISON in:
    - University of Pisa
    - University of Naples Federico II
    - University of Padua
  - Sign a MOU with:
    - AESA Turin
    - SASA at Sapienza, University of Rome
    - AIDAA Rome
    - EUROAVIA

# UNISEC Italy Future Action Plan























# **QUESTIONS?**

Additional information:

Fabio.santoni@uniroma1.it

4th UNISEC Global Meeting

Kamchia (Bulgary), 20-23 October 2016



