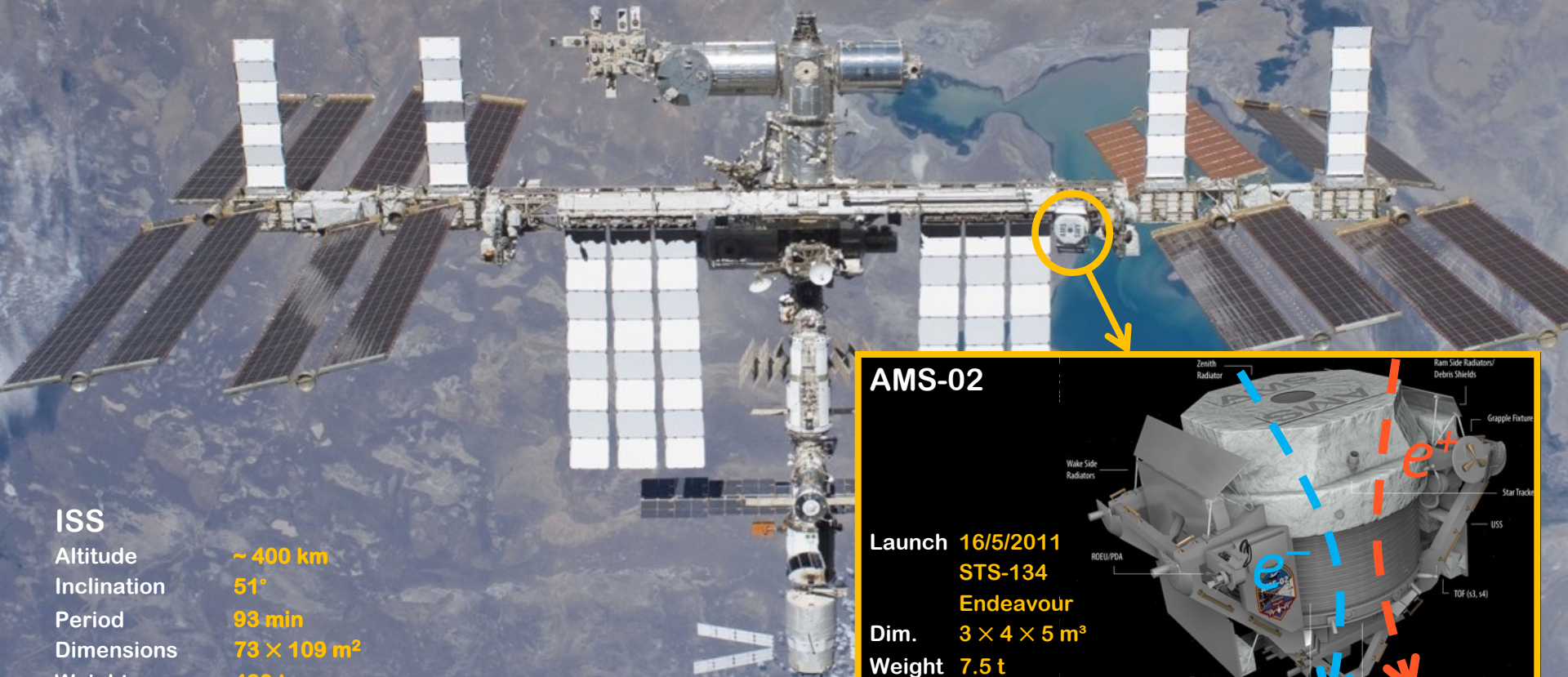


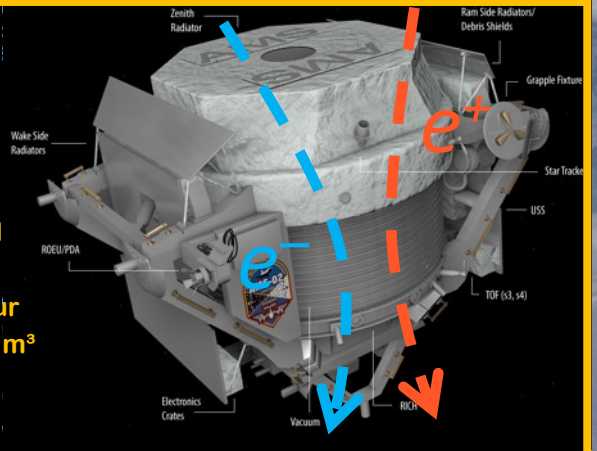
# AMS-02: The Alpha Magnetic Spectrometer

Installed in 2011 on the International Space Station (ISS), is taking data continuously since then.  
AMS measures **cosmic rays**, i.e. particles and nuclei, coming from outer space, in a wide energy range.  
AMS is able to accurately measure all components of cosmic rays, in particular separates **matter from anti-matter**.



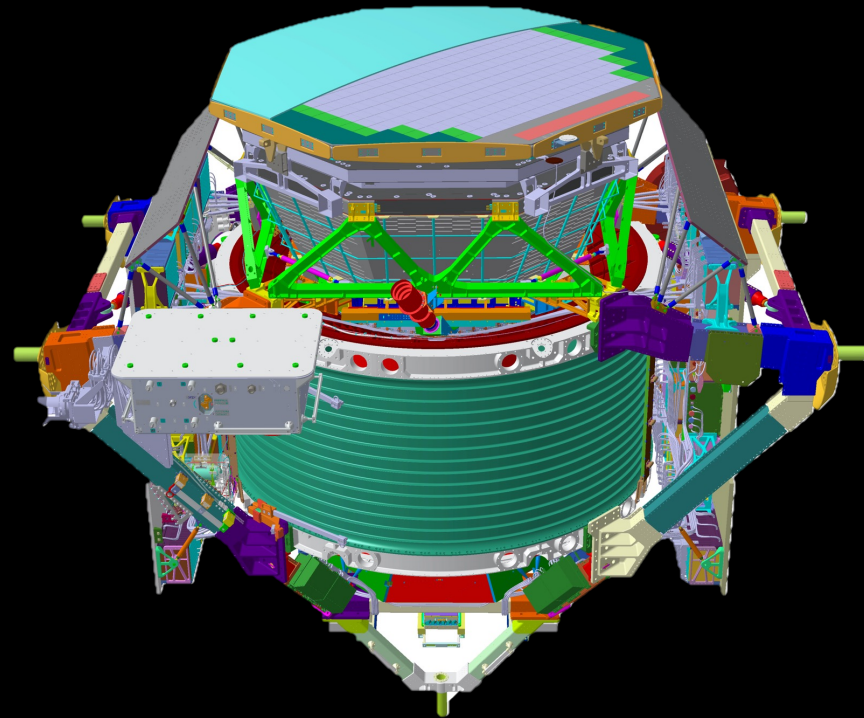
**ISS**  
Altitude ~ 400 km  
Inclination 51°  
Period 93 min  
Dimensions 73 × 109 m<sup>2</sup>  
Weight 420 t

**AMS-02**  
Launch 16/5/2011  
STS-134  
Endeavour  
Dim. 3 × 4 × 5 m<sup>3</sup>  
Weight 7.5 t  
Power 2500 W

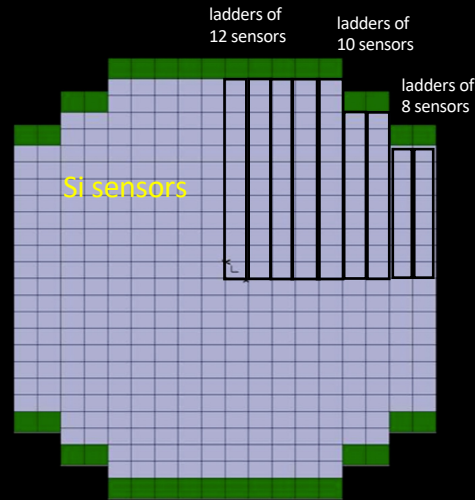


# The AMS-02 Upgrade

In the next years we are going to install a **new silicon layer (L0)** on the top of AMS, enhancing the AMS capabilities. This new layer is now under design, and first prototypes of the sensors and of the mechanics are already available. Thermo-vacuum tests of prototypes will be done in the first part of next year.



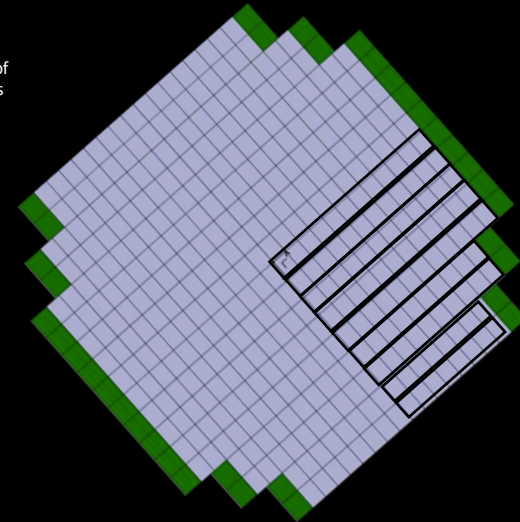
L0-Y



Front-end electronics

L0-U

(ruotato di 45°)



# The Stage with AMS-02 Upgrade

Given your curriculum in engineering we thought about your involvement in this project.

This would give you an opportunity to you on working on the design of an interesting object that will be soon installed on the ISS.

The general idea of the stage will be:

- You will work with me on the global understanding of the AMS mission and of its upgrade.
- You and I will be in contact with the team of young and dynamic engineers that are designing the L0 and we will discuss periodically some aspect of the mechanical design or of the FEM simulation (still to be identified).
- In spring there will be a test of L0 prototypes in a space qualification facility in Terni, and you can participate to the campaign.