



Space: Towards a Healthy Ecosystem

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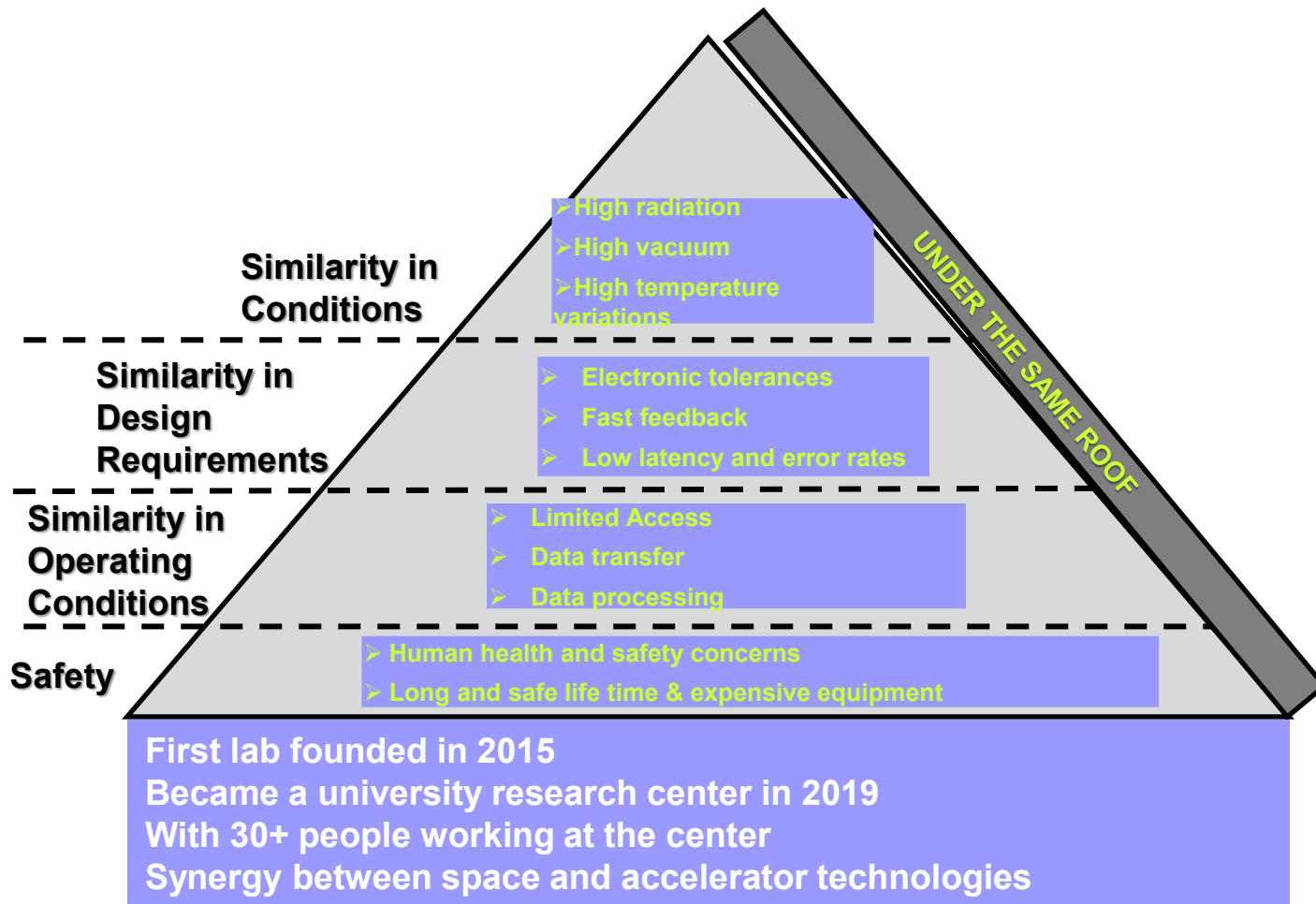
Also: Member of the UN AI Panel



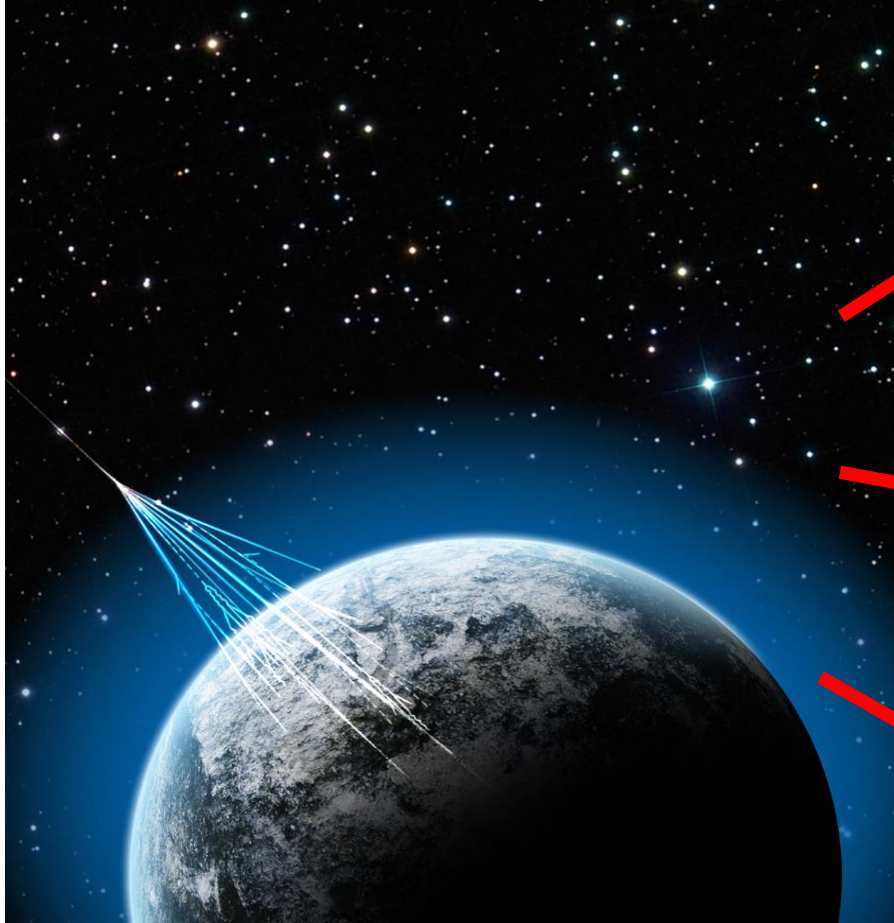
PANEL 5: NATIONAL STRATEGIES, POLICY FRAMEWORKS
AND ENABLING CONDITIONS
33RD UN/IAF WORKSHOP
Antalya, 4.10.2026



SPACE AND ACCELERATING TECHNOLOGIES



METU-IVMER : all 3 in 1



With the AMS-02 on the ISS

- Measurement of cosmic-rays
- Search of a dark matter signal
- Using AI models

Fundamental Science

With the METU-DBL project:

- Radiation dose predictions for National satellites
- Radiation tests with 15-30MeV protons according to ESA-ESCC-25100 standard + neutrons recently!

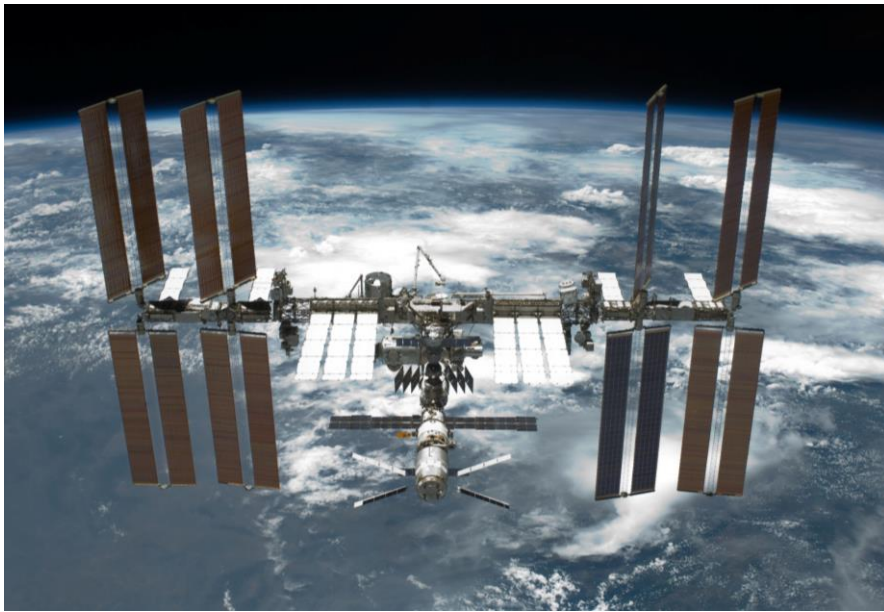
Applied Research

Development of radiation monitors and Novel shielding materials

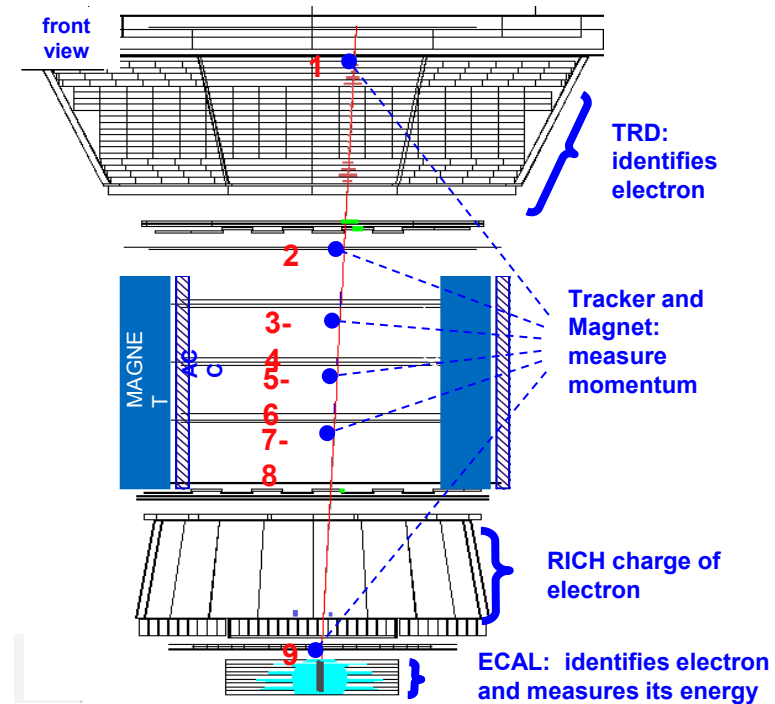
- for satellites,
- for Moon missions
- for hospitals

Product Development

The group consists of: 5 professors,
8 physicists, 5 engineers, 2 technicians
3 administrative staff, 8 PhD + 5 MS +
many undergraduate students.



Alpha Magnetic Spectrometer



AMS data on ISS: 424 GeV positron



Supported by CERN (in kind contribution)
 TENMAK (Turkish Energy, Nuclear, Minerals
 Research Agency)
 And TUBITAK
 Also university funds



Radiation Effects testing

IVMER's METU-DBL (Protons) and METU-NIDA (Neutron)

Built with CERN collaboration after Türkiye became an Associate member

Beam delivery compliant with **ESA ESCC No. 25100** standard fit for **SEE** and **TID** testing

147 testing campaigns have been hosted since commissioning in 2020

Users include **Fergani Space (TR)** and **Axiom Space (USA)**

Continuous **PROTON** beam

Kinetic energies **15-30 MeV**

Proton fluxes **10^6 - 10^{10} p/cm²/s**

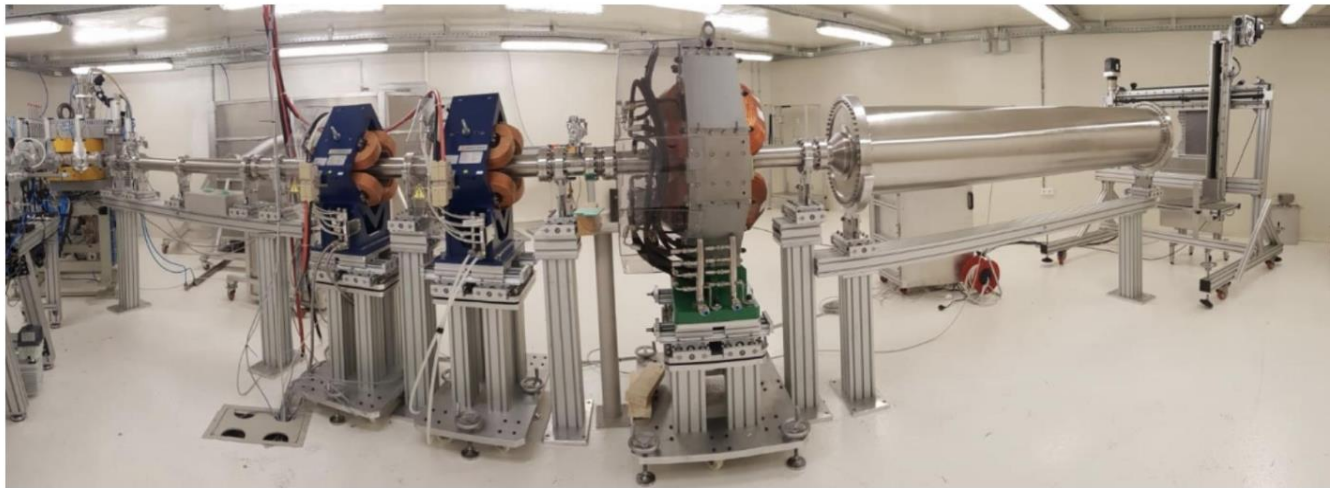
Beam Homogeneity **<~6%**

Max Beam size: **22cm x15cm**

NEW: NEUTRON beam

thermal and fast neutrons available

Address: **METU IVMER**
Ankara-Türkiye



METU-DBL is now a **RADNEXT 2030** facility!

RADNEXT 2030

Test. Qualify. Trust.

Europe's coordinated access to radiation effects testing facilities

RAD NEXT



Supported by CERN (in kind contribution),
By SSB (Undersecretariat of Defence Industries)



İVMER Radiation Monitors

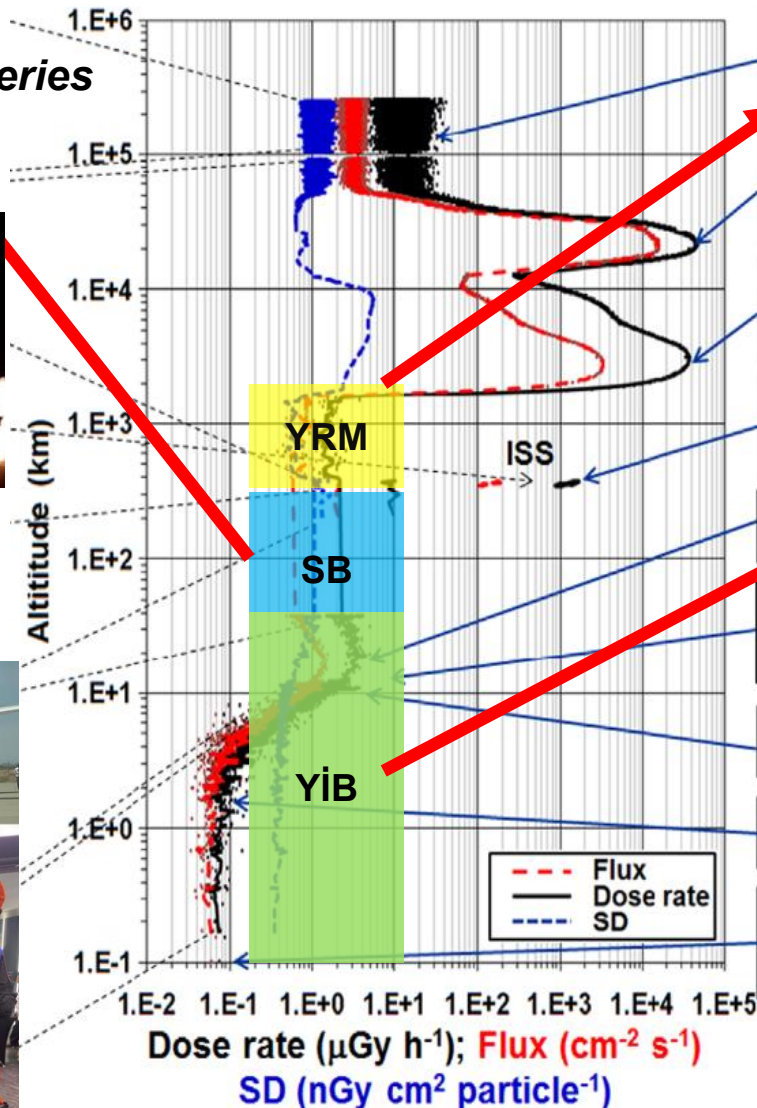
Sounding Rockets: SB Series



SB.0



2020
ROKETSAN
flight



Satellites: Home-grown Radiation Monitor (YRM)

- Sensitive to protons, heavy ions and electrons

High-Altitude Balloons: YİB Series



Healthy Ecosystem ?

- Since Sept 2023: Most assets in space are owned by one company → which now plans 1.2 million AI centers in space, with a > 1T dollar valuation
- Several other companies are following the lead: > 2 million satellites are not planned in the next 10 years
- What about traffic management + risks in space? Can a Carrington scale event then cause a Kessler syndrome ? Astronomy? Carbon footprint of launch + end of life ?
- UN AI Panel reported “fragmentation of governance”
 - *it is unclear whether data privacy or governance will extend to space / beyond maritime borders*
 - *More important than ever: developing nations to seek their rights given by the Outer Space Treaty (1967): "the exploration and use of outer space shall be carried out for the benefit and in the interests of all countries and shall be the province of all mankind"*

