

beyond gravity



PRETTY Passive Reflectometry and Dosimetry

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15 09 2022 | UN/Austria Symposium



beyond gravity

PRETTY
DRE

esa

TU
Graz

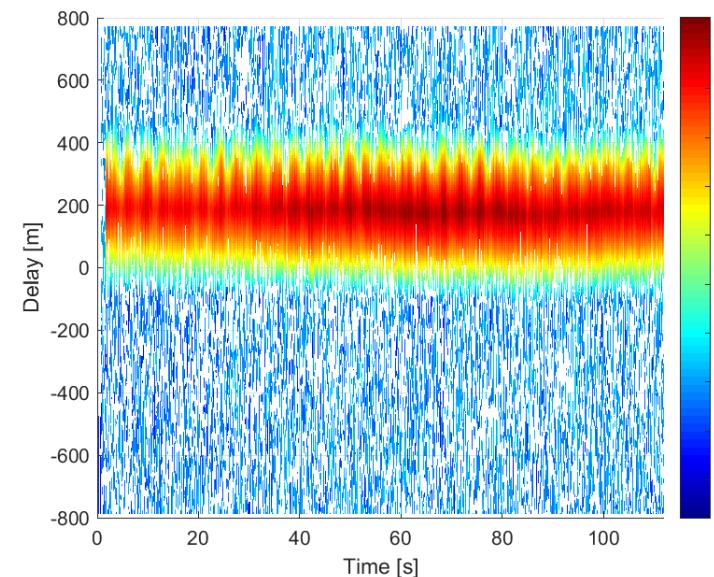
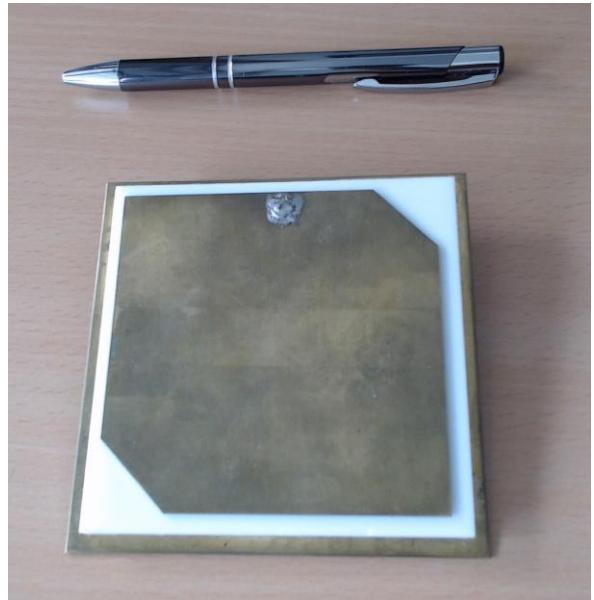
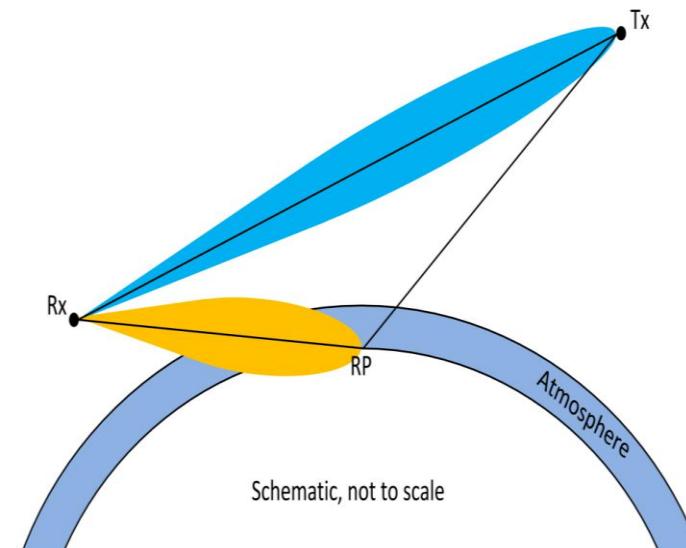
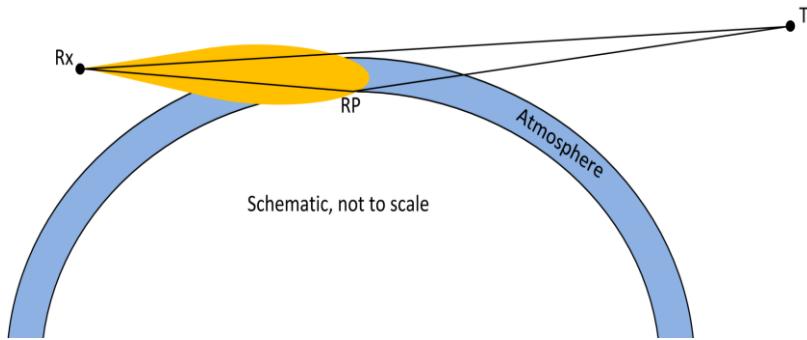
SEIBERSDORF
LABORATORIES



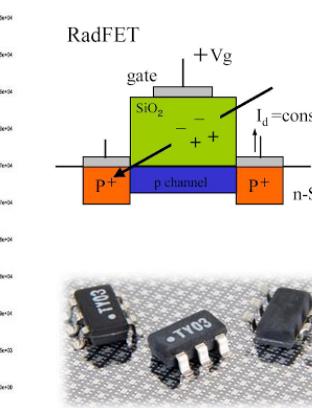
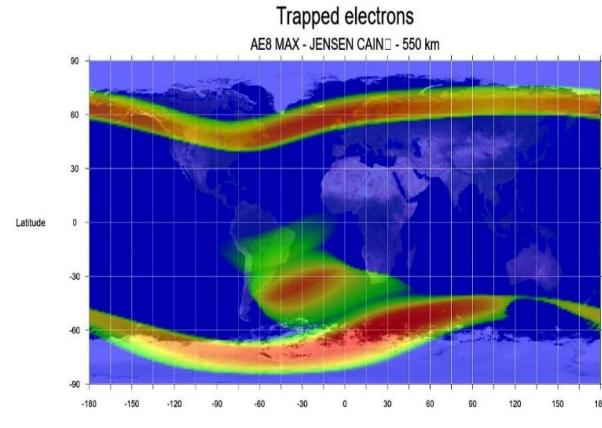
- Passive Reflectometer
 - System developed and tested at Beyond Gravity
 - Hardware provided by TU Graz
- Dosimeter
 - Developed and tested at Seibersdorf Laboratories
- Satellite Bus
 - Designed and integrated at TU Graz



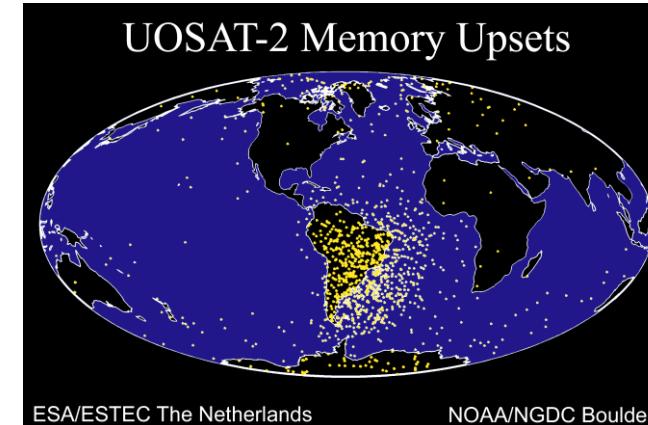
Passive Reflectometer Antenna



Total Ionizing Dose (TID)



Single Event Effects (SEE)



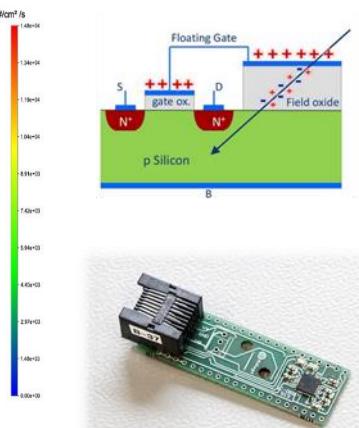
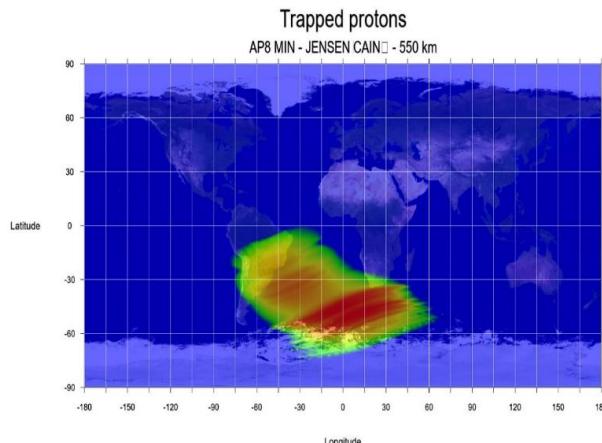
$0 \rightarrow 1$
 $1 \rightarrow 0$



In collaboration with



SEIBERSDORF LABORATORIES



	1. ISSI 40nm SRAM	2. Cypress 90nm SRAM
SEU Rate during quiet solar conditions	12 SEU/day	3-4 SEU/day
SEU Rate during solar storm	> 1,900 SEU/day	> 6,000 SEU/day
Main contributor to SRAM SEU rate	Low-energy protons	High-energy protons, solar protons and galactic heavy-ions



The current setup ..
.. and the setup 2023

Thank you for your
attention!

