

# SERESSA 2022

## System-Level Design and Radiation Test Methodologies based on a novel Software-Defined Radio Architecture for Space Applications

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### Abstract:

Designing hardware for space is always challenging since material and electronics will be forced by the harsh environment, in particular due to radiation. There is truly a large diversity in space hardware design as seen from the space industry and agencies or the CubeSat community, that is mainly driven by costs, time and reliability aspects.

In this talk the different approaches, their advantages and disadvantages are discussed and a new approach in space hardware design will be presented including the selection of critical system elements/electronics and the qualification methodology for a radiation-tolerant communication system that has been developed by the speaker.

### Short Bio:

Jan Budroweit is communication system engineer and radiation effects expert at the German Aerospace Center (DLR) which he joined in 2013. Besides his engineering activities at DLR space missions, his ongoing research areas involve the development of integrated multiband communication platform solutions for spacecraft. Research topics are the prediction, characterization and mitigation of radiation effects in electronic components and systems (specifically in radio systems and RF devices). Since 2020, Jan Budroweit is the founder and team leader for radiation effects in space systems supporting the ongoing space missions of the DLR. He holds a PhD in electrical engineering (Dr.-Ing) from the Technical University of Hamburg (TUHH) in the field of radiation-tolerant communication system design and development.



### Organizers:

