Contribution ID: **128** Type: **Oral presentation (remote)**

Smartcell X-Band Normal Conducting Accelerator Structure Prototype Fabrication

Tuesday 9 July 2024 11:40 (20 minutes)

This presentation details the design and fabrication process of a prototype of a normal-conducting X-band accelerator structure, which we denominate Smartcell. These structures, achieved through brazing/bonding techniques, are crucial components for future linear colliders.
We will cover the brazing/bonding geometry, materials selection and their implications, variations in heat cycles, and atmospheres employed during brazing/bonding. The impact of copper quality and annealing procedures implemented before, during, and after machining will be discussed specifically on how they can influence the machinability, microstructure, and ultimately the performance of the final component.
The presentation will showcase the behaviour of five mock-ups, including the results and conclusions obtained through optical examination, metrology, and SEM analysis. We will also discuss silicon carbide RF properties and characterization throughout the fabrication process.

Apply for poster award

Primary author: MORALES SANCHEZ, Pedro (CERN)

Co-author: CATALAN LASHERAS, Nuria (CERN)

Presenter: MORALES SANCHEZ, Pedro (CERN)

Session Classification: Normal conducting RF

Track Classification: Accelerator: Normal Conducting RF