



ID de Contribution: 22

Type: **Oral presentation**

Sub-Kelvin cryogenic developments for future CMB projects

jeudi 29 février 2024 13:00 (15 minutes)

In order to reach a greater sensitivity, future CMB missions will need to have their focal plane to be cooled down to 100 mK typically. This will require a $2 \mu\text{W}$ cooling power delivered in a continuous and stable way. The current cooling technologies do not meet these requirements anymore. To achieve those goals, a Closed-Cycle Dilution Refrigerator is in development, using a mixture of 3He and 4He .

Moreover, as shown by the Planck space mission, this type of highly sensitive cryogenic detectors can be sensitive to Cosmic Ray hits, creating spurious signals in the data, seen as glitches. New generations of detectors for new space missions therefore need to be studied by irradiation with particles of different energy levels to mimic the Cosmic Ray hits. These effects are currently under study on transition edge sensors (TES) and microwave kinetic inductance detector (MKID) by testing them at 100mK in front of a particle accelerator.

Astrophysics Field

Instrumentation

Day constraints

No constraints.

Auteur principal: Mme BESNARD, Anaïs (Institut d'Astrophysique Spatiale (IAS))

Orateur: Mme BESNARD, Anaïs (Institut d'Astrophysique Spatiale (IAS))

Classification de Session: Session 6