ID de Contribution: **34** Type: **Oral presentation**

TES detection-chain operation of the QUBIC instrument dedicated to the CMB observation

jeudi 27 février 2020 11:45 (15 minutes)

Q U Bolometric Interferometer for Cosmology (QUBIC) is a new ground-based experiment aiming to detect the Cosmic Microwave Background (CMB) B modes. QUBIC is based on bolometric interferometry, a new instrument architecture. This combines together the well known control of systematic effects from interferometers with the high sensitivity of bolometric detectors. It will observe the polarisation of the CMB, the first light emitted after the Big Bang, in two frequency bands (150 and 220 GHz.)\\
QUBIC has two focal planes equipped with kilo-pixel arrays of Transition Edge Sensors (TES). Superconducting QUantum Interference Devices (SQUID) are used as amplifiers and switches for the
multiplexing system. Application Specific Integrate Circuits are used at low temperature for the readout electronics.\\
The original concept combining SQUID multiplexing and additional multiplexing in a cryogenic integrated circuit (ASIC) achieves a 128-multiplexing factor. \\
The full readout system is in operation in the QUBIC cryostat since 2018 operating on a partially populated focal plane of 256 NbSi
TES. Operations and performance using this readout system will be presented. Aliasing noise and limitation of the multiplexing frequency will also be discussed, highlighting possible future improvements.

Field

Cosmology

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Classification de Session: Talk

Classification de thématique: Astrophysics