Contribution ID: 45

Design and performance of a signal processing system for CULTASK experiment

Wednesday 22 June 2016 17:40 (1h 30m)

CULTASK (CAPP Ultra Low Temperature Axion Search in Korea) is an experiment to search for the cosmic Axion using resonant cavities, targeting to be sensitive to a large range of microwave photons converted via the Primakoff effect in a very high magnetic field at an ultra low temperature. In order to detect very weak signal of 10⁻²⁴ W with a high signal-to-noise ratio, a careful system for signal processing has been designed and developed. The basic principle of the signal processing is a radio frequency (RF) transceiver with direct conversion to baseband, with a fast digitizer to process the amplified signal in real time for further Fourier transformation. The measurement results of a cryogenic amplifier chain and the signal processing system at room-temperature will be presented.

Primary author: Dr KIM, Young-Im (Institute for Basic Science)
Presenter: Dr KIM, Young-Im (Institute for Basic Science)
Session Classification: Poster session