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标题: Development of Kinetic Inductance Stationary-Wave Integrated Fourier-Transform Spectrometry (SWIFTS)
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摘要: We present millimeter-wave Stationary-Waves Integrated Fourier Transform Spectrometry (SWIFTS) using the nascent Kinetic Inductance Detector (KID) technology. SWIFTS operation consists in converting a stationary-wave spatial sampling into the frequency domain; our SWIFTS devices are designed to operate in the sub-THz region. Millimeter wave power is probed using KIDs, high-quality superconducting resonators deemed to be the next generation millimetric photon detectors for large array astronomy cameras. We expect KIDs to be sensitive enough to sense the stationary wave without altering its properties. Moreover, KID multiplexing capabilities will allow the use of many detectors on a single transmission line, facilitating cryogenic measurements.The SWIFTS concept, already validated in the optical and microwave (< 20 GHz) bands, will be useful in any applications where integrated and broadband spectral analysis is needed. We discuss SWIFTS device structure, its measurement operation and some preliminary results.
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