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标题: Requirements on Photon Counting Detectors for Terahertz Interferometry
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摘要: Future Terahertz astronomy requires higher angular resolution observations. One possibility is to use photon counting interferometry, which is similar to the intensity interferometry demonstrated by Hanbury Brown and Twiss in 1956. In terahertz frequencies, it will be possible to measure all the photon arrivals and can identify bunched photons from thermal sources to measure correlation amplitude and time delay of the photon arrivals. By obtaining the complex visibility, aperture synthesis images can be obtained. I name this technology as photon counting terahertz interferometry (PCTI). From scientific case study, requirements to the detectors are high photon counting rate and accurate time resolution. I discuss on requirements on possible detector technologies such as superconducting single photon detectors (SSPD), superconducting tunnel junction (STJ) detectors and charge sensitive infrared photo-transistors (CSIP).
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