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Abstract:The terahertz portion of the electromagnetic spectrum is perhaps the last largely-unexplored wavelength frontier for astronomical observations. It is also one of the most diagnostic, harboring spectral signatures of ions, atoms, and molecules that are central to our understanding of the composition and origin of the Solar System, the evolution of matter in our Galaxy, and the star formation history of galaxies over cosmic timescales. In this brief overview, specific astronomical applications of terahertz spectroscopy will be highlighted with examples of current heterodyne capabilities, and projection of future astronomical demands upon terahertz instrumentation.

Number of references:70