383.
Accession number:20113714319012
Title:THz low resolution spectroscopy for astronomy
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Source title:IEEE Transactions on Terahertz Science and Technology
Abbreviated source title:IEEE Trans. Terahertz Sci. Technolog.
Volume:1
Issue:1
Issue date:September 2011
Publication year:2011
Pages:241-255
Article number:6005346
Language:English
ISSN:2156342X
Document type:Journal article (JA)
Publisher:IEEE Microwave Theory and Techniques Society, 2458 East Kael Circle, Mesa, AZ 85213, United States
Abstract:The THz spectral regime provides a wide range of spectral lines that are invaluable probes of star formation and AGN activity in galaxies both in the local Universe and at the earliest times. We review the utility of these lines, give examples of the science they deliver, and detail the properties of successful low resolution direct detection spectrometers for work in the THz regime. We finish with a discussion of the exciting new science we expect with the next direct detection generation spectrometers on new facilities such as SOFIA, CCAT, SPICA, and ALMA.
Number of references:101