283
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Title:THz rotational spectrum of H<inf>2</inf>F
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Abstract:In view of recent tremendous advance in astronomical observations in the submillimeter to THz region brought by the Herschel space craft, laboratory high-resolution spectroscopic investigations in that frequency region into unstable molecules, in particular, light hydride ions, are urgently needed. As a part of such endeavor, rotational transitions of H<inf>2</inf>F were observed in the THz-region by using a tunable far-infrared spectrometer. These newly detected lines together with the submillimeter-wave lines obtained previously and the combination differences derived from infrared vibration-rotation lines were subject to a least-squares analysis that yielded a set of molecular constants with much better accuracy. The measured and predicted THz transition frequencies should prove to be a useful probe into detection of interstellar H<inf>2</inf>F. © 2012 American Institute of Physics.
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