322. Title:Measurement of the transmission of the atmosphere from 0.2 to 2 THz
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Abstract:The attenuation of electromagnetic wave propagation in the clear atmosphere from low frequencies up to 2 THz is mainly caused by water vapor. Although there have been many numerical simulations and excellent early sub-mm and far-infrared measurements of this attenuation, there has remained controversy about the background absorption in the most promising windows of transparency below 1 THz. Here, we report an accurate terahertz time-domain spectroscopy (THz-TDS) characterization of water vapor from 0.2 to 2 THz. Our results agree with the previous predicted and measured attenuations for the weak water lines, but show more attenuation for the relatively transparent windows between these lines.