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Terahertz spectra of ionized air produced by various sources BENJAMIN GRABER, Naval Research Laboratory and Temple University, RONGJIA TAO, Department of Physics, Temple University, DONG HO WU, Naval Research Laboratory — Experiments have shown that terahertz spectroscopy is a useful tool for the identification and characterization of chemicals and biological materials, mostly in their solid or liquid phases. Recently, we carried out terahertz spectroscopy experiments on ambient air, which contains gas molecules that may be ionized by various ionization sources, such as background radiation, high-voltage transmission lines, and corona discharge. Our experiments, which were performed with several different ionization sources, including a corona discharge device and nuclear isotopes, indicated that terahertz spectra of ambient air depend on the degree of air ionization, as well as on the ionization source. In this presentation we will discuss the details of our experiments and the implications of our experimental results.

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