

Abstract Submitted
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Remote sensing of an elevated level of background ionization with a 1 THz, 1 kW Gyro-BWO¹ VICTOR GRANATSTEIN, GREGORY NUSINOVICH, IREAP, University of Maryland, College Park — One application of the THz gyro-BWO under development at the University of Maryland is remote sensing of an elevated level of background ionization in air at NTP; such an elevated level might be found in the vicinity of radioactive material. The aim of the gyro-BWO development is to produce ~ 1 kW of THz power in a 100 microsecond pulse. When such radiation is focused to a spot of cross-sectional area $\sim \lambda^2$, the electric field would be sufficient to break down the air if the background ionization level were sufficiently elevated. With the time to breakdown dependent on background electron density n_o , an elevated value of n_o will manifest itself by causing a shortening of the transmitted or reflected THz pulse. The range and sensitivity of such a detection scheme will be discussed.

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