Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

**Millimeter-Wave Transmittance and Reflectance Measurement on Pure and Diluted Carbonyl Iron** KONSTANTIN KOROLEV, Department of Electrical and Computer Engineering, Tufts University; Extremely High Frequency Medical And Technical Association, SHU CHEN, ZIJING LI, MOHAMMED AFSAR, Department of Electrical and Computer Engineering, Tufts University — Transmittance and reflectance measurements on highly absorbing carbonyl iron materials over a broad millimeter-wave frequency range have been performed. Frequency dependence of the complex dielectric permittivity of carbonyl iron diluted composite and pure powdered materials have been determined in the millimeter waves for the first time. The measurements have been employed using a free-space quasi-optical millimeter-wave spectrometer equipped with a set of high power backward wave oscillators as sources of coherent radiation, tunable in the range from 30 – 120 GHz. Significant transmission zone of the millimeter-wave radiation at frequency around 60 GHz has been observed in transmittance spectra for the carbonyl iron materials.

Konstantin Korolev
Department of Electrical and Computer Engineering, Tufts University;
Extremely High Frequency Medical And Technical Association

Date submitted: 16 Nov 2009 Electronic form version 1.4