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Bending Loss Optimization in Hollow Flexible Terahertz Waveguides PALLAVI DORADLA, C.S. JOSEPH, JAYANT KUMAR, ROBERT H. GILES, University of Massachusetts Lowell, STL, UNIVERSITY OF MASSACHUSETTS LOWELL TEAM — Hollow, flexible, metal (Ag/Au) coated polycarbonate waveguides have been designed and fabricated for the transmission of Terahertz radiation. Attenuation characteristics of waveguides with bore diameters 4.1mm, 3.2mm, 2 mm were studied at two different wavelengths 215μm and 513μm. Minimal propagation loss of 2dB/m was achieved by coupling the lowest loss TE11 mode into the waveguide from an optically pumped terahertz laser. Maximal bending loss of 0.8dB was achieved for waveguides of bending radii 8, 13, 18cm and bending angles of 30 to 150 degrees. The investigation shows that a mode can be preserved in metal coated waveguide by launching the lowest order TE11 mode into a small bore hollow guide. Results will be presented during APS meeting.

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