

**Design, Fabrication and RF Measurement of a MM-Wave Accelerating Structure,** R. APEL, H. HENKE, R. MERTE, TU-BERLIN - The paper presents a new design of a planar traveling wave constant impedance accelerating structure (MUFFIN TIN) operating at 91.392 GHz. The design includes a new power coupler, a cavity geometry optimized for high shunt impedance as well as solutions for cooling and vacuum. A prototype was fabricated by wire electron discharge machining. A scalar measurement system for both S-parameters and bead pull measurements was developed to determine the RF parameters of the prototype. Measured results are presented and compared to theoretical results.