

**A Proposal for a Resonant Beam Position Monitor for the TESLA-FEL, T. SCHOLZ, TU-BERLIN** - The projected TESLA-FEL demands a very high resolution for the transverse beam position detection (1  $\mu\text{m}$ ) for 50  $\mu\text{m}$  long bunches. Additionally limitations on installation space are very restricted because of the detector position between two undulator magnets spaced 12 mm. To meet all these conditions a coaxial resonant beam position monitor is presented. The resonator is coupled to the beam magnetically, the signal is extracted from there to the waveguide also magnetically, alternatively with a loop or through an iris. Numerical simulations are compared with measurements on a scaled model. Some suggestions concerning the actual assembly are made.