**Beam Intensity Monitoring and Machine Protection by Toroidal Transformers on the TESLA Test Facility**, J. FUSELLIER, J.M. JOLY, CEA, DSM/DAPNIA/SEA, CE-Saclay, F-91191, Gif-sur-Yvette, France - In the framework of the TTF project now under construction at DESY, we have developed beam intensity monitors using the technique of toroidal transformers. The particular time structure of the beam (0.8 ms pulse length, 10 Hz) and the need for a large beam aperture have imposed difficult constraints on the design. The machine protection relies on differential comparison of the signals originating from several pairs of these monitors placed at different locations along the linac. 100 kHz samples as well as integrated signals are compared. The maximum tolerated average loss will be 0.8 μA over the 64 μA nominal machine current.