

**Impedance, Loss Factor and Beam Stability Calculations for the ANKA Storage Ring,**  
F. PEREZ\*, FZK, ANKA Project Group, Germany - The ANKA storage ring is designed to store 400 mA at 2.5 GeV. The injection will be done at 500 MeV and then the beam will be ramped up to the nominal energy. The overall impedance of the vacuum chamber has been evaluated in order to calculate the intensity threshold of single bunch instabilities for both ramping and storage beams. Given the different types of components (bellows, flanges, cavities, step transitions, BPMs, ...) that conform the vacuum chamber, we evaluate the impedance of each component separately and sum up its contribution to the overall impedance, which results to be less than 2 Ohms. This has been done by using the usual simulation codes and analytical formulae. The results show that the instability thresholds are safely far away from the nominal current. On the other hand, the calculation of the loss factor allows the determination of the power wasted on each component. The main conclusion is that the bellows have to be shielded in order to avoid heating damage. The detailed results of these calculations are presented in this paper.

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