

Storage Ring Bake-out Efficiency from the Accelerator Parameters Point of View,
J. MIERTUSOVA, Sincrotrone Trieste - In the past it was generally believed that carefully performed bake-out of the storage ring vacuum chamber can lead to a lower photon induced desorption and subsequently to a longer beam lifetime. At a later stage of the machine life, some labs (among them ELETTRA) gave away bake-out. From the theory of Thermal desorption spectroscopy can be found that during bake-out only molecules with low sorption energies can be desorbed. Photon stimulated desorption can remove also tightly bounded molecules which are always present on technological surfaces. The efficiency of beam cleaning depends on the critical energy of photons. It will be shown that the desorption yield coefficient together with the necessary conditioning time can be estimated, knowing the bending magnet parameters. This approach will be verified for the third generation synchrotron light sources as well as for the already existing low energy machines. A large saving on capital and running costs can be achieved by renouncing bake-out. Moreover, magnets with lower gaps can be installed, which leads to an additional cost reduction. Thermal stress is partially avoided, too.