

**A Preliminary Study on High Precision Photon Beam Position Monitor Design for Local Feedback Systems, A. GALIMBERTI, C. SCAFURI,** Sincrotrone Trieste - In the last generation of Synchrotron Radiation Sources, a great effort has been spent on beam stability improvements. For the incoming users' requests, also the photon beam position in each beamline is controlled in various facilities. Local bump orbit feedback systems are actually under development for improving the stability of the delivered radiation. Photon beam position monitors are used to detect the beam motions at low and high frequency and their performances play a key role for a successful local feedback system. In this scenario the photon beam position monitors design becomes a great challenge for the high precision and sensitivity requested. A lot of real error sources, as bending magnet contamination, electrical noise, mechanical tolerances and crosstalks, affect and degrade the performances of the actual devices. Starting from a background of operational experience using these devices, a preliminary study for a new generation of photon beam position monitors is presented in this paper. Some possible solutions, suitable to overcome the actual photon beam position monitor problems, are proposed.