

**New Installations and Beam Measurements at MAMI\***, K. AULENBACHER, TH. DOERK, H. EUTENEUER, F. HAGENBUCK, R. HERR, P. JENNEWEIN, K.-H. KAISER, H.-J. KREIDEL, U. LUDWIG-MERTIN, S. RATSCHOW, J. SCHULER, M. STEIGERWALD, G. STEPHAN, IKPH Mainz University; A.S. ALIMOV, A.S. CHEPURNOV, V.I. SHVEDUNOV, INP, Moscow State University - At the CW RTM-cascade MAMI [1] the 100 keV injection line was successfully reconstructed, to install a second source of polarized electrons close to the injector linac and to increase the beam capture efficiency by a harmonic prebuncher. At the high energy end of the accelerator, a new beamline was installed to two experimental areas for the generation and utilization of coherent x-rays. Here the beam parameters can be adapted very flexible to different radiator types at different locations. The beam diagnostics at MAMI was further extended, e.g. by common mode suppressed rf position monitors and by a synchrotron radiation monitor on the linac axis of RTM3 for emittance measurements as a function of beam energy and current. Concerning the transverse beam optics in RTM3, a current dependent nonlinearity was detected, presumably caused by ion-trapping of the multiple beam on the linac axis. As a consequence, the high precision energy measurement [2], based on the linearity of the horizontal optics, is restricted to currents below 5 mA at the moment. Therefore, a complementary system using a time of flight measurement was installed and tested.

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[1] H. Herminghaus, Proc. LINAC'88, p.247

[2] Th. Doerk et al. Proc. EPAC'96, p.1405