

First Results of Beam Storing in the ESRF Booster Synchrotron, G. MÜLHAUPT, G. SCHMIDT,

U. WEINRICH, ESRF - The 6 GeV fast cycling booster synchrotron of the ESRF can be used as a storage ring at energies between 160 MeV and 1.5 GeV with ramping times around 2 sec. In the presently available single shot injection mode, currents up to 7 mA in multibunch mode can be accelerated and stored. A second injection kicker will soon provide the possibility to accumulate current. Measurements of the beam stability, beam size and bunch length at different energies between 160 MeV and 1.5 GeV are presented and compared with theoretical predictions. The RF system designed for operation up to 6 GeV allows the application of large over-voltages. The possibility of achieving short bunches are explored. The shortest bunches are obtained in single bunch mode and are of the order of 13 ps at 1 GeV for a stored current of 0.03 mA. The results of bunch length measurements in the turbulent regime at different energies and accelerating voltages to probe the impedance of the machine are presented.