

RF System for the ANKA Booster Synchrotron,
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synchrotron of the 2.5 synchrotron light source ANKA,
under construction at FZK, Karlsruhe, will ramp the energy
of a 10 mA beam from 50 MeV to 500 MeV (injection
energy to the storage ring) with a repetition rate of 1 Hz.
The RF system will use a simplified ELETTRA cavity
powered by a 200 W cw RF plant. The operating
frequency will be the same of the storage ring
(499.652 MHz). In this way it will be ensured that the
bunch length at extraction from the booster will fit
comfortably in the storage ring RF bucket. The low level
electronics will include, apart from a phase shifter to adjust
the phase between the booster and the storage ring RF
systems, a frequency tuning loop for the cavity and an
amplitude loop. The system has been designed in order to
be as simple as possible while still satisfying the
requirements for reliable and efficient operation. A general
description of the system and the status of the design and
construction is reported together with some considerations
of the effects of beam-cavity interaction on the whole RF
system.