

Operation of ELETTRA with a Lower Emittance Optics,

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Gaining a full experience as well as accomplishing an overall characterisation of the machine under the nominal optics of ELETTRA, with many of the performances surpassing the designed values, the machine operation is at the stage of exploring different optics modes. As being proposed and operated also elsewhere, an optics which breaks the dispersion free condition in the free straight section thereby lowering further the horizontal emittance is considered and operated in ELETTRA. It is found, in particular, that for the ELETTRA lattice a wide range of optical solutions exist with quadrupole settings only varied by less than 10% and associating no substantial variation in the entire structure of the beta functions, which have the reduced horizontal emittance by up to a factor of two with respect to the nominal value. The linear and nonlinear characteristics on the design level are described together with the actual measurements performed under the discussed optics.