

Coherency of Magnetic-Bremsstrahlung Emitters and Prospects for the X-ray FELs, E. BULYAK, V. KURILKO, KIPT - Quantitative results of the theoretical analysis of the data obtained by experimental investigations of the FEL characteristics are presented. The data are based on series of efficiency measurements of FEL-amplifiers and FEL-oscillators performed in the leading research centers. Regarding the data, the analysis aims at searching for dependence of coherence level of stimulated radiation emitted by electrons on their relative volume density. In order to describe this dependence quantitatively two parameters are introduced: the coherence factor (C) and the number of coherent emitters (Q). The fact of the dependence existence is proved: the factor C is shown to be monotonously increasing function of its argument Q. Number of coherent emitters is valuated for a series of the soft X-Ray FELs designed to be driven by SLAC linac.