

THE EFFECT OF INITIAL ELECTRON BEAM  
MODULATION ON ITS EVOLUTION IN  
OVERCRITICAL PLASMA

*I.O. Anisimov, N.O. Boyko<sup>1</sup>, S.V. Dovbakh,  
D.B. Palets<sup>1</sup>, L.I. Romanyuk<sup>1</sup>*

Taras Shevchenko Kyiv National University  
Faculty of Radiophysics,  
(64, Volodymirska, Str., Kyiv 01033, Ukraine),

<sup>1</sup>Scientific Center 'Institute for Nuclear Research',  
Nat. Acad. of Sci. of Ukraine  
(47, Nauky Prosp., Kyiv 03022, Ukraine)

S u m m a r y

The effect of initial modulation degree of a monokinetic nonrelativistic electron beam on the further evolution of the modulation frequency signal in overcritical plasma is studied analytically, by means of computer simulation, and experimentally. The existence of several distinctive ranges of the modulation degree is shown, where the time (spatial) dependences of the signal amplitude have an essentially different pattern determined by a competition between the modulation frequency mode and plasma-beam system eigenmodes with electron Langmuir frequencies of the background plasma.