COAXIAL GYRO-BWO.
2. THE NONLINEAR THEORY

A.V. Borodkin, G.V. Sotnikov, I.N. Onishchenko, V.M. Khoruzhiy

National Science Center
"Kharkiv Institute of Physics and Technology"
(*1, Akademichna Str., Kharkiv 61108, Ukraine; e-mail: khoruzhiy@kipt.kharkov.ua*)

S u m m a r y

Theoretical and numerical investigations of a nonlinear regime of generation in a coaxial backward wave oscillator (gyro-BWO) operating at the resonance of an electron beam with the eigenmode of a coaxial waveguide on the normal Doppler effect are carried out. The spatio-temporal dependences of the HF wave amplitude in a coaxial waveguide for various values of injected electron beam currents are analyzed. Types of excitation regimes of a coaxial gyro-BWO and the behavior of the interaction efficiency when changing the electron beam current are investigated.