

UHF REFLECTOMETRY  
OF PLASMA BY EXTRAORDINARY  
WAVES WITH A FREQUENCY BELOW  
THE ELECTRON CYCLOTRON FREQUENCY

*A.I. Skibenko*

National Science Center  
Kharkiv Institute of Physics and Technology  
(1, Akademichna Str., Kharkiv 61108, Ukraine;  
e-mail: a-skibenko@mail.ru)

S u m m a r y

Comparative dependences of the refractive index on the profiles of a plasma density and a magnetic field are found for ordinary and extraordinary waves under various conditions of plasma probing. Advantages of using the extraordinary wave (X-wave) with a frequency below the electron cyclotron frequency for the diagnostics of a magnetoactive plasma are analyzed with regard for the experimental conditions on a U-3M torsatron. The refraction of microwaves at the oblique plasma probing is studied taking the poloidal component of a magnetic field into consideration. The Doppler shift of an X-wave reflected from the moving plasma layer is found to exceed that of an ordinary wave (O-wave).