

# POLARIZATION CHARACTERISTICS OF DIFFRACTION AND CHERENKOV RADIATION FROM A DIELECTRIC SCREEN

*Anatoly Konkov<sup>a,1</sup>, Alexander Potylitsyn<sup>a</sup>, Mikhail Shevelev<sup>b</sup>,  
Alexander Aryshev<sup>b</sup>*

<sup>a</sup> National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan

<sup>b</sup> High Energy Accelerator Research Organization (KEK), Tsukuba, Japan

It is well-known that the polarization is one of the most important radiation characteristic as well as intensity and spectrum. In this report we use the “polarization currents” approach [1, 2] to calculate the polarization characteristics (the Stokes parameters) of diffraction and Cherenkov radiation occurring as a result of uniform motion of a charge near a finite size dielectric screen. The Stokes parameters are determined by the geometry of a screen position relative to an electron beam as well as by permittivity of the screen material. Due to these reasons polarization of radiation can have the circular component (can become elliptic one).

The work was partially supported by the program “Nauka” of the Russian Ministry of Education and Science within the Grant No. 3.709.2014/K and the Russian Foundation for Basic Research Grants No. 14-02-31642-mol\_a, No. 14-02-01032-A and No. 15-52-50028 YaF\_a.

## References

- [1] D.V.Karlovetz and A.P.Potylitsyn 2009 JETP Lett. **90** 368
- [2] K.O.Kruchinin and D.V.Karlovetz 2012 Russ. Phys. J. **55** 9

<sup>1</sup> Corresponding author: anatoliy.konkov@gmail.com