

Dear Natascha Töpfer, Copernicus Publications Editorial Support:

We re-submit a revised version of our article entitled "Excitation of chorus with small wave normal angles due to BPA mechanism in density ducts" [No.: angeo-2019-83] for publication in Journal ANGEО (ANGEО Communicates). We also submit an itemized 'Author's response' to the comments offered by referee and 'Author's changes in manuscript' as part of 'Respond to all referee comments'. The issues raised by referees have been fully addressed in the revised version (highlighted and clean versions of the manuscript are presented) and in the response, and we thus hope that the paper will now be considered acceptable for publication.

The paper discusses an important problem concerned with the excitation of chorus with small normal angles ($\theta \simeq 20^\circ$) in the magnetosphere, but where no strong anisotropy is present in the momentum space distribution function of the plasma particles. We believe that the solution of this problem, presented in a clear way, will be of interest to readers of your journal. We examine specific features of the realization of the beam pulse amplifier mechanism (BPA) of chorus excitation in the density ducts having a width of the order of $100 - 300 \text{ km}$ with refractive reflection. It is shown that in the ducts, discrete spectral elements of chorus with a narrow angular spectrum along the external magnetic field can be excited at frequencies close to half the electron cyclotron frequency.

With respect, on behalf of all co-authors

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