

Abstract Submitted
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Modeling of self-consistent artificial radiowave ionospheric turbulence pumping and damping¹ ANDREY KOCHETOV, Institute of Applied Physics of RAS — The numerical simulations of the action of self-consistent powerful radiowave absorption arising in the regions of artificial plasma turbulence excitation at formation, saturation and relaxation stages of the turbulence structures (Kochetov, A.V., Mironov, V.A., et. al., *Physica D, Nonlinear phenomena*, 2001, 152-153, 723) to refraction index dynamics are carried out. The nonlinear Schrödinger equation in inhomogeneous plasma layer with incident electromagnetic wave pumping and backscattered radiation damping (Kochetov, et al, *Adv. Space Res.*, 2002, 29, 1369 and 2006, 38, 2490) is extended with the imaginary part of plasma dielectric constant, which results the energy transformation from electromagnetic wave to plasma one at resonance interaction (D.V. Shapiro, V.I. Shevchenko, in *Handbook of Plasma Physics 2*, eds. A.A Galeev, R.N. Sudan. Elsevier, Amsterdam, 1984). The modeling reproduces the basic energy transformation peculiarities: hard excitation, non-linearity, hysteresis (A.V. Kochetov, E. Mjølhus, *Proc. of IV Intern. Workshop “SMP,”* Ed. A.G. Litvak, Vol.2, N. Novgorod, 2000, 491) and demonstrates that the calculated reflection and absorption index dynamics at the beginning of the saturation stage agrees qualitatively to the experimental results for ionosphere plasma modification study. (Thide B., E.N. Sergeev, S.M. Grach, et. al., *Phys. Rev. Lett.*, 2005, 95, 255002).

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Andrey Kochetov
Institute of Applied Physics of RAS

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