

Abstract Submitted  
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**Generation and Evolution of Intense Ion-Cyclotron Turbulence  
by Artificial Plasma Cloud in the Magnetosphere<sup>1</sup>**

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— It is shown that intense ion-cyclotron turbulence can be induced in the near-Earth space environment by shaped release of neutral gas such as lithium. Release of one ton in the Earth's equatorial plane at  $L=2$  can introduce about 30 GJ of energy to pump intense turbulence around the ion cyclotron harmonics that readily evolves into the turbulent state. The energy is obtained by converting the orbital kinetic energy of the neutral lithium atoms into free energy for the electromagnetic waves through photo-ionization and creation of a ring distribution. The distribution function is highly unstable to the generation of shear Alfvén waves near the lithium cyclotron harmonics. Additionally these waves lead to intense pitch angle scattering of the trapped electrons in a broad energy band.

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