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VLF/ELF Remote Sensing of Ionospheres & Magnetospheres

Chorus Emissions Triggered by the Shot Electromagnetic Noise

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Some theoretical aspects of magnetospheric VLF chorus excitation are discussed. An original approach to solving the problem of oblique chorus excitation is outlined and partially realized within the framework of a beam pulsed amplifier mechanism [1]. Parameters of the resonance electron beam in the chorus excitation region are determined theoretically [2]. A short electromagnetic pulse amplification is calculated. It is shown that in the duct, discrete spectral elements of chorus with a narrow angular spectrum along the external magnetic field can be excited at frequencies close to half of the electron cyclotron frequency [3]. Some important properties of the chorus emissions, such as the location of the excitation region, frequency band, wave vector direction, group velocity direction, temporary dynamics, and energy of particles and waves are explained.

References

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