Numerical simulation of the generation of Alfven waves by laser plasma in a magnetized background plasma with neutrals at Alfven-Mach numbers less than one

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This work presents results of numerical simulation of the generation of extended Alfven waves (AW) by a periodic sequence of laser plasma bunches at Alfven-Mach numbers of 0.2 in plasma with neutrals.

The simulation results showed that when the density of neutrals exceeds the density of the background plasma by 10 or more times, the velocity and amplitude of the Alfven wave decreases. As a result of collisions of neutrals with the rotating plasma of bunches, the neutrals acquire an azimuthal velocity component and are displaced to the periphery of the AW. When the concentration of neutrals is nN=1 and lower, the velocity and amplitude of the AW are the same as in a plasma without neutrals.

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