VORTEX DIPOLE RESPONSE IN THE GIANT DIPOLE RESONANCE ENERGY REGION

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The velocity fields associated with isovector excitations of spherical nuclei in the giant dipole resonance (GDR) energy region have been studied within a semiclassical approach based on the solution of the Vlasov kinetic equation for finite two-component Fermi systems with a moving surface. The neutron-proton asymmetry and dynamical surface effects lead to the fragmentation of the isovector dipole strength in the energy region of the GDR on two resonances. It was found that the velocity field has a potential character in the energy range near the main (low-energy) maximum of the GDR. However, the velocity field reveals a vortex character in the surface region at the energy of the high-energy maximum of the GDR.