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Gennadiy Filippov

Chuvash State Pedagogical University, Russia

Passage of accelerated high charged ions through a system of parallel thin films

The passage of charged projectiles through the porous structure is investigated for the goal of calculation the forced action of a wave packet (or the classical particle bunch) on the porous walls. An analysis of the passage of quantum particles is performed by numerically solving the Schrödinger equation. In the framework of classical electrodynamics, the polarization force acting on the charge is calculated. In the problem of the passage of ions with large values of charges through ultrathin carbon films, the possibility of pore performing in the films is analyzed. In order to understand the process more clearly, a mathematical modeling of the film is performed, accompanied by a clarification of the most important polarization properties. Calculations showed the possibility of perforating the film due to the influence of ponderomotive forces generated by the strong polarization field of the wave packet of the passing ion.

Biography

Gennadiy Filippov has his expertise in particle-solid interaction physics. He has completed his PhD at the age of 54 years from Tomsk State University (Russia). He is head of the Laboratory of Biophysics and Bio-nanotechnology in the Chuvash State Agricultural Academy and Professor in the Chuvash State Pedagogical University in Cheboksary, Russian Federation.

filippov39-gm@yandex.ru

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