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Examination of the Wake Potential and the Intergrain Force for Particles within a Glass Box BO ZHANG, JIE KONG, LORIN MATTHEWS, TRUELL HYDE, CASPER - Baylor University — The potential structure created by the ion wakefield has been shown to interact with dust grains immersed within a plasma. This wakefield has been extensively investigated over the subsonic to supersonic regimes using the Cartesian mesh, Oblique boundary, Particles and Thermals In Cell (COPTIC) code for particles in a complex plasma. In this study, two dust particles in a dusty plasma and provided additional confinement by a glass box are examined. The force experienced on both the downstream particle (with and without the upstream particle) and the upstream particle (with and without the downstream particle) is determined simultaneously. By tuning the relative position of each dust particle with respect to their alignment to the plasma flow, the wake potential for each is mapped. It is shown that the structure of the wake potential is strongly affected by both the ion streaming flow and the orientation of the interparticle force.

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