

## Publication

### A particle-particle, particle-density algorithm for the calculation of electrostatic interactions of particles with slablike geometry

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We present a fast and accurate method to calculate the electrostatic energy and forces of interacting particles with the boundary conditions appropriate to surfaces, i.e., periodic in the two directions parallel to the surface and free in the perpendicular direction. In the spirit of the Ewald method, the problem is divided into a short range and a long range part. The charge density responsible for the long range part is represented by plane waves in the periodic directions and by finite elements in the nonperiodic direction. Our method has computational complexity of  $O(N(g) \log(N(g)))$  with a very small prefactor, where  $N(g)$  is the number of grid points.

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