Abstract

In this paper, we present the computer simulation of motions of micro-size solid wastes particles dispersed in water. The physical theory describing dynamics of particles is used. Particles equations of motion are formulated and are solved numerically by using the standard fourth-order Runge-Kutta method to obtain the micro-particle trajectories. Many particle trajectories are traced out to investigate capture behavior. Computing of each trajectory is optimized by using variable time step scheme. Overall simulation procedures are speedup by using parallel algorithm based on OpenMp. All trajectory computation is distributed to a group of computing threads. Each thread computes, in each time step, its occupied trajectories in parallel. After all trajectories are computed, a master thread is dedicated as the rendering thread for displaying all trajectories using OpenGL.
On the Computer Simulation of Microparticles Capture in Magnetic Filters using OpenMP

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Index Terms

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Applied Sciences
Keywords
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