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Lattice Boltzmann Method For Structured Flexible Bodies in Fluid Flows D. QI, Western Michigan University, T. WU, R. GUO, National Kaohsiung Normal University — A new simulation method for a structured flexible solid particles is developed. In this method, a spring lattice model is generalized to include two- and three-body force interactions and construct a structured fiber so that the fiber could be freely deformed in any irregular shapes. Lattice Boltzmann method and Drace Delta function are employed to deal with complex interaction in the interfaces between fluid and solid particles. In this new method, constrain forces are added into the fluid particles within the solid regime so that the inside fluid particles have the same property as the solid. Further, rotation and motion of a flexible fiber in a shearing flow and in a sediment flow, respectively, are numerically simulated.

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