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Multiscale Thrombosis Simulations on Massively Parallel Computers

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We have developed a multiscale simulator for the primary stage of thrombus formation as a result of a platelet adhesion to an injured vessel wall. The simulator numerically treats fluid-membrane interactions at the continuum level [1][2], and also ligand-receptor interactions between proteins at the molecular level [3]. From the simulated results obtained using a massively parallel computer, we discuss the enhancement of the thrombus formation in view of the particulate flow dynamics.

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