1096-VG-1227 **Tyler Skorczewski*** (tskorc@math.utah.edu). *Multi-bond models of platelet adhesion.*

The initial response to blood vessel injury is formation of a platelet aggregate to seal off the damage to the vascular wall. To form the aggregate, platelets adhere to the vascular wall and cohere to one another. Both of these processes involve the interplay of multiple types of receptor-ligand bonds with different force-dependent binding kinetics. The local fluid dynamics affects the bond dynamics by exerting shear stresses on the platelets. We present a mesoscale stochastic binding model based on recent experimental data about platelet receptor-ligand interactions and incorporate it into an immersed-boundary-based platelet aggregation model. Multiple bond types and activation of platelets in response to binding are parts of the model. Simulation results illustrate that the model can capture the stop-start motion of a platelet along the vessel wall as well as the activation-dependent firm adhesion that has been observed experimentally. (Received September 13, 2013)