IMAGING AND COMPUTATIONAL METHODS FOR BIOMECHANICS

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Numerical modeling is important for the understanding of many problems in biomechanics including, for example, the study of hemodynamics, the modeling of tissues in the human body, etc. Though numerical studies are noninvasive, they are often time-consuming, especially when we need to study and compare multiple scenarios, because of the complex geometry and the high computational complexity. In this mini symposium, we present some latest development of numerical methods, such as parallel domain decomposition methods, and their high-performance implementations for solving Newtonian and non-Newtonian fluid flows problems, linear and nonlinear elasticity problems, electrophysiology problems. Several classes biomechanical problems will be targeted including the cerebral artery, the coronary artery, the pulmonary artery, the abdominal aorta, and the heart.