1145-76-2185 **Guoyi Ke*** (gke@lsua.edu), Mathematics and Physical Sciences, Louisiana State University of Alexandria, 8100 Hwy 71 S, Alexandria, LA 71302-9119, **Sara Calandrini** (sara.calandrini@ttu.edu), Department of Mathematics and Statistics, Texas Tech University, 1108 Memorial Circle, Lubbock, TX 79409, and **Eugenio Aulisa** (eugenio.aulisa@ttu.edu), Department of Mathematics and Statistics, Texas Tech University, 1108 Memorial Circle, Lubbock, TX 79409. *A new preconditioning technique for fluid-structure interaction problems with applications in biomechanics.*

In this work, we investigate preconditioning techniques for Krylov subspace algorithms to solve fluid-structure interaction (FSI) linear systems arising from finite element discretizations. An outer Krylov subspace solver preconditioned with a geometric multigrid (GMG) algorithm is used, where for the multigrid level sub-solvers, a field-split (FS) preconditioner is investigated. The block structure of the proposed FS preconditioner derives from using the physical variables as splitting strategy. To solve the subsystems originated by the FS preconditioning, an additive Schwarz (AS) block strategy is employed. The proposed field-split preconditioner is tested on biomedical FSI applications. Both 2D and 3D simulations are carried in consideration of aneurysm and venous valve geometries. The performances of the FS preconditioner are compared with those of a second preconditioner of pure domain decomposition type. (Received September 25, 2018)