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L. Chen*, 510F Rowland Hall, University of California at Irvine, Irvine, CA 92697, **L.P. Chen**, Sun Yat-Sen University, Guangzhou, Guangdong , Peoples Rep of China, **M. Wang**, Peking University, Beijing, Beijing , Peoples Rep of China, and **J. Xu**, Department of Mathematics, Pennsylvania State University, University Park, PA 16801. *Discretization using $H(\text{curl})$ element for the Biot model.*

The Biot model of poroelasticity has been widely used in petroleum engineering, acoustic wave propagation in saturated media, and biology for several decades. In this talk, we present a novel $H(\text{curl})$ element discretization of the Biot model. The divergence operator applied to edge element is understood in the weak sense and the Laplacian operator is discretized using mixed formulation. The resulting discretization is solver-friendly in the sense that an efficient multigrid solver can be developed based on the underlying exact sequence. Numerical examples are provided to show the proposed method is efficient for the poroelasticity simulation.

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