1155-65-80 **Qiao Zhuang***, 225 Stanger Street, Blacksburg, VA 24061, and **Slimane Adjerid** and **Tao Lin**.
Immersed finite element methods for second order hyperbolic equations in inhomogeneous media.

In this presentation, we reanalyze the fully discrete PPIFE method presented in the previous article. Utilizing the error bounds given recently for elliptic interface problems, we are able to derive optimal a-priori error bounds for this PPIFE method not only in the energy norm but also in L^2 norm under the standard piecewise H^2 regularity assumption in the space variable of the exact solution, rather than the excessive piecewise H^3 regularity. Numerical simulations for standing and travelling waves are presented, which corroboratively confirm the reported error analysis. (Received December 20, 2019)