1136-65-187 **Slimane Adjerid*** (adjerids@vt.edu), McBryde Hall, Balcksburg, VA 24061, **Tao Lin** (tlin@vt.edu), MCBryde Hall, Balcksburg, VA 24061, **Ruchi Guo** (ruchi91@vt.edu), McBryde Hall, Blacksburg, VA 24061, and **Kihyo Moon** (hyoxt121@gmail.com), SAMSUNG, Seoul, South Korea. *High Order Immersed Methods for Interface Problems.*

We introduce the immersed finite element approach for solving interface problems modeled by partial differential equations with discontinuous coefficients. A brief historical review of immersed finite element methods will be presented. We will address few challenges faced in constructing higher-order immersed finite element spaces and weak Galerkin formulations for high accuracy computations. We will present computational results for several applications from acoustics, fluid dynamics and conclude with a list of open questions and future research projects. (Received January 14, 2018)