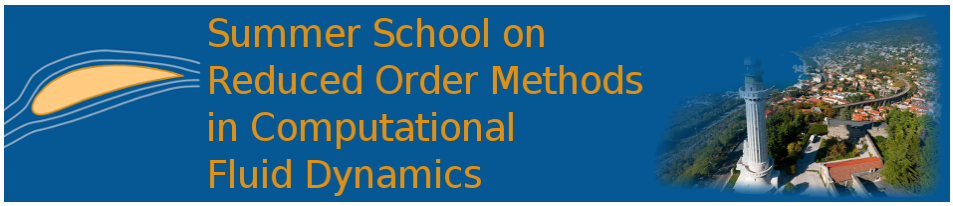

Contribution ID: **67** Type: **Poster**

Enriched Galerkin Discretization for Mixed-Dimensional Modelling Flow in Fractured Porous Media

Wednesday, July 10, 2019 4:45 PM (3 minutes)

This paper presents the enriched Galerkin discretization for modelling fluid flow in fractured porous media using the mixed-dimensional approach. The block structure used to compose this mixed-dimensional problem is presented. The proposed method has been tested against published benchmarks. Moreover, the heterogeneous matrix permeability setting is utilized to assess the enriched Galerkin performance in handling the discontinuity within the matrix domain and between the matrix and fracture domains. Our results illustrate that the enriched Galerkin method has the same advantages as discontinuous Galerkin method; for example, conserves local and global fluid mass, captures the pressure discontinuity, and provides the optimal error convergence rate. However, the enriched Galerkin method requires much fewer degrees of freedom than the discontinuous Galerkin method. The pressure solutions produced by both methods are approximately similar regardless of the conductive or non-conductive fractures or heterogeneity in bulk matrix permeability input.

Primary authors: Mr KADEETHUM, Teeratorn; Dr NICK, Hamid M.; Prof. LEE, S.; Prof. BALLARIN, F.

Presenter: Mr KADEETHUM, Teeratorn

Session Classification: Poster blitz