



Contribution ID: 394

Type: **Oral Presentation**

# Homogenization of flow and solute transport in fractured media using hybrid upscaling method

*Wednesday, 15 May 2024 12:45 (15 minutes)*

Abstract:

Fractured media can be found in various natural and engineering systems, and the presence of fractures and fracture networks has a significant impact on the flow and transport processes at different scales. However, the complex nature of fractures poses challenges for theoretical modeling and numerical analysis. In this study, we propose a new hybrid upscaling workflow that combines analytical solutions at the continuum scale with fracture network methods. This method aims to preserve the connectivity of the fracture network and account for the interactions between fractures and the surrounding matrix. To validate the effectiveness of the new method, we compared its results with pore-scale simulations. Additionally, we investigated the influence of factors such as permeability, fracture aperture, porosity, and pore structure on the media. Through rigorous accuracy analysis and parameter studies, we assessed the applicability and computational efficiency of the proposed upscaling method.

Key words: fracture network; flow and transport in fractured media; Hybrid upscaling method

## Acceptance of the Terms & Conditions

[Click here to agree](#)

## Student Awards

## Country

China

## Porous Media & Biology Focused Abstracts

## References

## Conference Proceedings

I am not interested in having my paper published in the proceedings

**Primary authors:** LING, Bowen (Institute of Mechanics, Chinese Academy of Sciences); WANG, Yujie (North University of China)

**Presenter:** WANG, Yujie (North University of China)

**Session Classification:** MS03

**Track Classification:** (MS03) Flow, transport and mechanics in fractured porous media