
Contribution ID: **382** Type: **Poster**

# A universal visco-inertial flow model in geologic porous media

*Monday, 14 May 2018 17:15 (15 minutes)*

Fluid flow though geologic fractured/porous media tends to become non-Dacian as a result of the competition between viscous and inertial forces and the effect of pore geometry variation. The Forchheimer equation has been widely shown to apply in these situations, in which the coefficient of viscous permeability (kv) is largely predictable, but this is not so for the coefficient of inertial permeability (ki). Synthesizing thousands of pore-scale flow models and field and laboratory observations, we show that ki can be predicted from kv via the equation ki~(kv)^(3/2) across twelve and sixteen orders of magnitude in ki and kv, respectively. kv is thus sufficient for predicting flow across viscous-to-inertial regimes for most geologic media.

## References

## Acceptance of Terms and Conditions

Click here to agree

**Primary author:** CHEN, Yi-Feng (Wuhan University)

**Co-authors:** Mr ZHOU, Jia-Qing (Wuhan University); Dr WANG, Lichun (The University of Texas at Austin); Prof. CARDENAS, M. Bayani (The University of Texas at Austin)

**Presenter:** CHEN, Yi-Feng (Wuhan University)

**Session Classification:** Poster 1

**Track Classification:** MS 1.08: Non-linear flows in porous media: impact of inertia and non-linear rheologies on pore scale processes and applications