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Pore-scale modeling of capillary trapping in water-wet porous media:  
A new cooperative pore-body filling model

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**Highlights**

- A new model for cooperative pore body filling displacement is proposed.
- Capillary trapping is strongly influenced by the interaction between different displacement mechanisms.
- Image-based pore networks from micro-CT scans are used in order to study capillary trapping in water-wet rocks.
- A good agreement between experimental and simulated results is found using the proposed model.

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