

# Quantification of Residual Trapping

## Scientific Achievement

High resolution X-ray computed tomography of column experiments of injected CO<sub>2</sub> and brine under reservoir conditions provided measurements of contact angles and residual trapping in hydrophobic and hydrophilic media of different textures.

## Significance and Impact

Residual trapping of CO<sub>2</sub> is very sensitive to grain wettability.

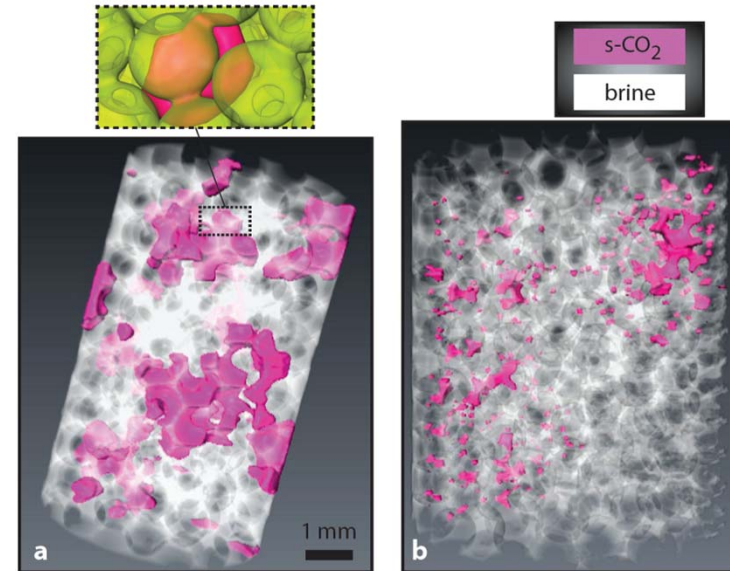
## Publications

Chaudhary, K., M. B. Cardenas, W. W. Wolfe, J. A. Maisano, R. A. Ketcham, and P. C. Bennett (2013), Pore-scale trapping of supercritical CO<sub>2</sub> and the role of grain wettability and shape, *Geophysical Research Letters*, 40(15), 3878-3882.

## Contacts

M. Bayani Cardenas (cardenas@jsg.utexas.edu)

High-resolution X-ray computed tomography (HRXCT) images of residually trapped supercritical CO<sub>2</sub> in hydrophilic glass (a) and hydrophobic Teflon (b) beads. The solid beads are not rendered (but shown as transparent yellow in the inset figure), supercritical CO<sub>2</sub> is purple, and brine is white. Images taken after the secondary brine flood in a sequential brine–supercritical CO<sub>2</sub>–brine flooding experiments.



U.S. DEPARTMENT OF  
**ENERGY**

Office of  
Science



Sandia  
National  
Laboratories

