

Pore-scale velocity measurements in microfluidic pore networks using Particle Image Velocimetry (PIV)

Research Team

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Objectives of Research

Measure 3-D in-situ single and multiphase flow fields to enhance our understanding of CO₂ behavior in heterogeneous porous media at meso-scale

Research Plan

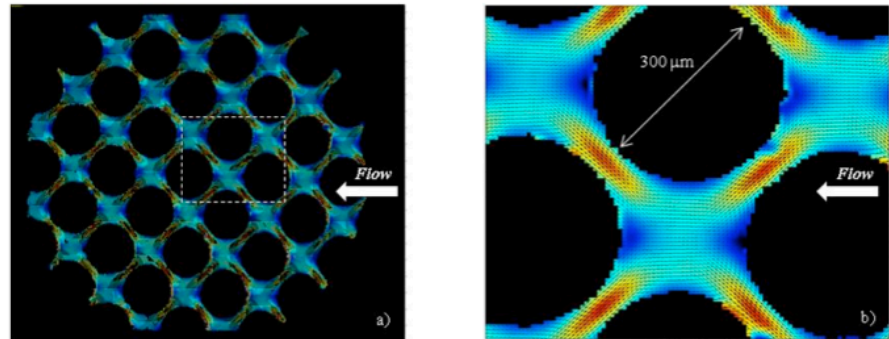
1. Use PIV to measure 3-D flow fields in micro-pillar microfluidic devices with regular and irregular geometries.
2. Multiphase; 3D-print structures

Impact on Specific Challenges

Challenge 2 : using pore space with unprecedented efficiency

Understand the role of spatial heterogeneity in governing pore-scale flow dynamics

EXAMPLE 2D velocities in a regular geometry



From Blois et al., PIV13