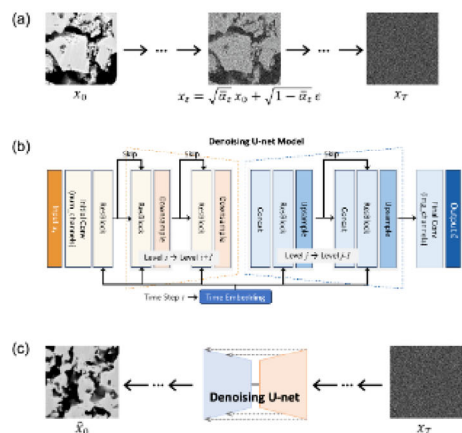
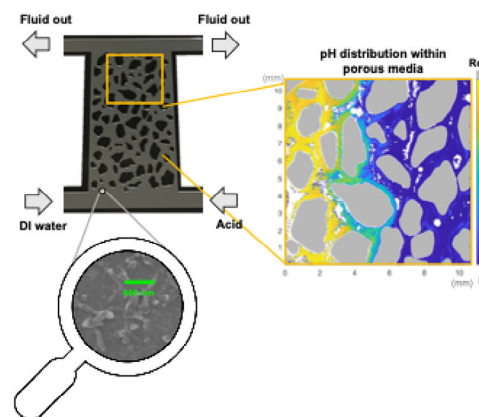


Rock-on-chip design/fab platform



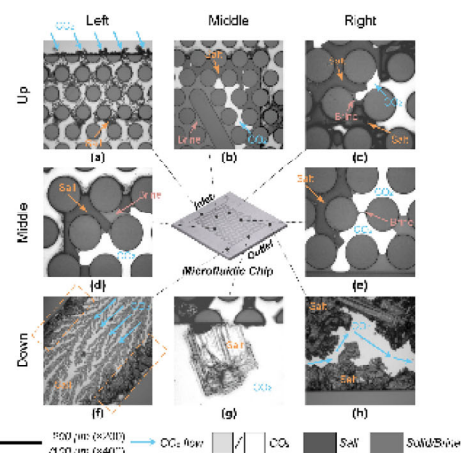
Platform with
sinDiffusion rock
generation + texture
synthesis + maskless
lithography + ...
enables fabrication of
rock-on-chip samples
from real rock images

In-situ sensing of pH with pores



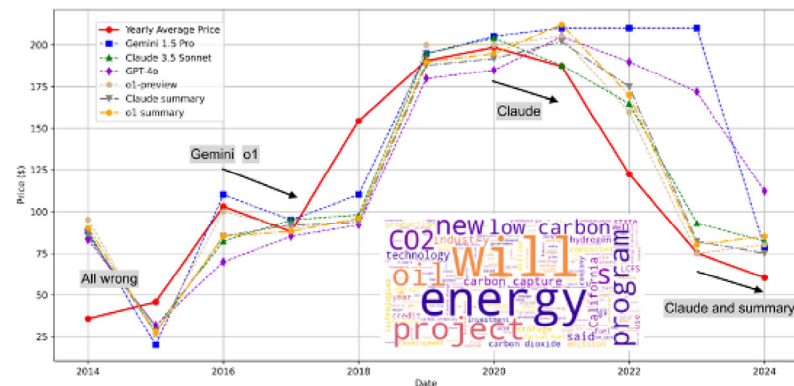
Microfluidic porous
medium coated with
polyaniline (PAni) to
achieve colorimetric
delineation of pH
spatial distribution
with fast response
and robustness

CO₂-brine-salt precipitation dynamics



A heterogeneous micromodel
effectively reproduces dual-
permeability zones with
comparable permeability to
real rock samples. Pore-scale
dynamics of salt precipitation
and CO₂ dissolution
investigated through high-
resolution microscopy and
three-dimensional confocal
laser scanning.

LLM-based carbon credit analysis



LLM analysis of California LCFS policy related corpus
benchmarking on time-series data of carbon credit price