Contribution ID: **519** Type: **Oral Presentation**

Evaporation in porous media with salt precipitation

Monday, 13 May 2024 17:15 (15 minutes)

Visualization experiments are performed to disclose the salt precipitation and gas-liquid displacement in microfluidic pore networks during evaporation. Two forms of salt precipitation are revealed: aggregated polycrystalline structures and large bulk crystals. It is found that gas bubbles can be formed because of imbibition of liquid into aggregated polycrystalline structures. The length of a corner liquid film can affect the direction of growth of the aggregated polycrystalline structures connected to the corner liquid film. Discontinuous corner liquid films can be transformed to continuous ones when they are touched by growing aggregated polycrystalline structures. The “sleeping” aggregated polycrystalline structures at the open surface of a microfluidic pore network, i.e. efflorescence, can grow again if they are touched by growing aggregated polycrystalline structures inside the microfluidic pore network, i.e. subflorescence. Because of efflorescence, the evaporation rate from a microfluidic pore network can increase first and then decrease. In addtion, the distribution of the precipitated salts also depends on the thermal gradient along the microfluid pore networks.

Acceptance of the Terms & Conditions

Click here to agree

Student Awards

Country

中国

Porous Media & Biology Focused Abstracts

References

Conference Proceedings

I am not interested in having my paper published in the proceedings

Primary author: Dr WU, Rui (Shanghai Jiao Tong University)

Presenter: Dr WU, Rui (Shanghai Jiao Tong University)

Session Classification: MS06-B

Track Classification: (MS06-B) Interfacial phenomena across scales