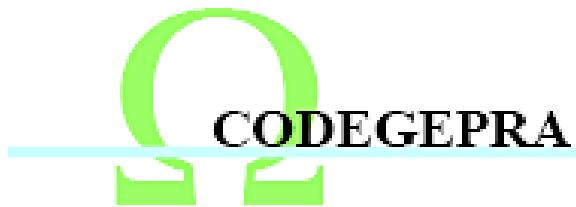




## Morphological Study of Cyclopentane Hydrates in Saline Water for Desalination Application



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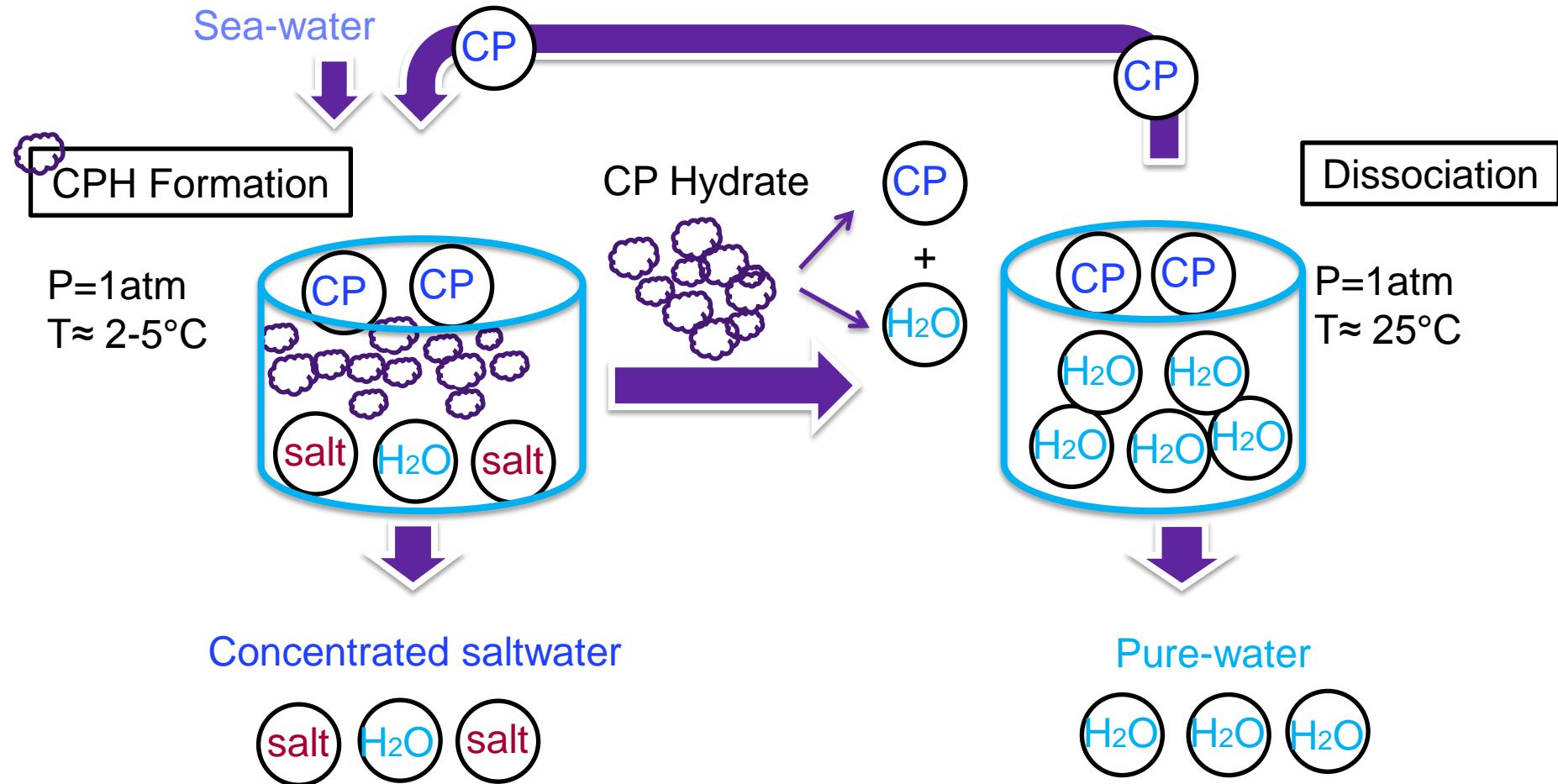
Pr. Daniel GARCIA

Saheb MAGHSOODLOO-BABAKHANI

Pr. Jean-Michel HERRI (sup.)

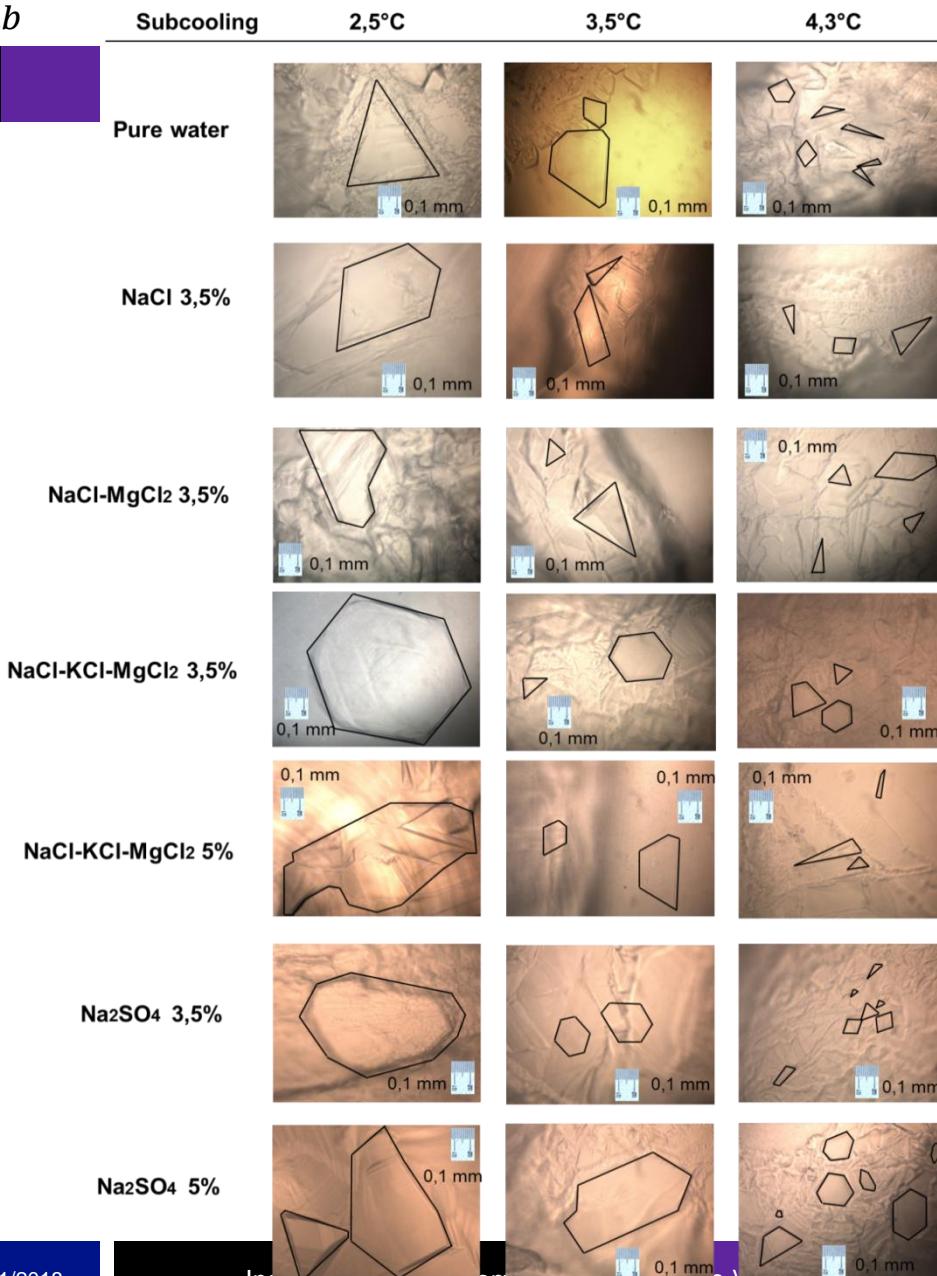
14/11/2018

# Hydrate-based desalination process

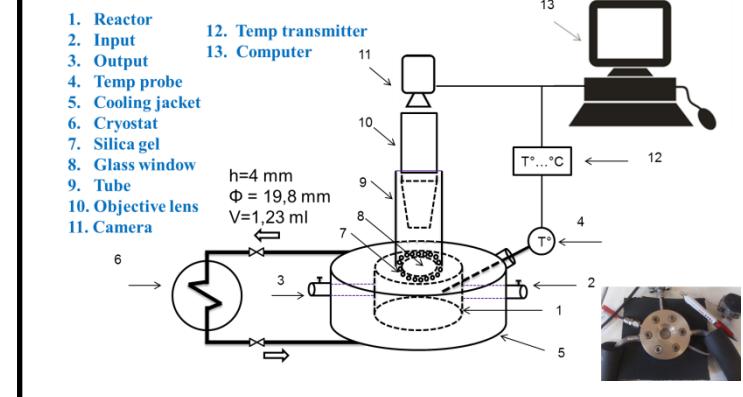


# Morphology of CPH

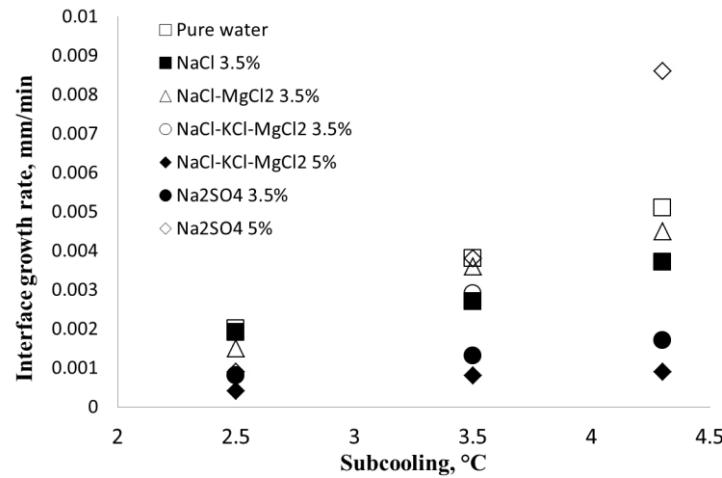
$\Delta T_{sub}$



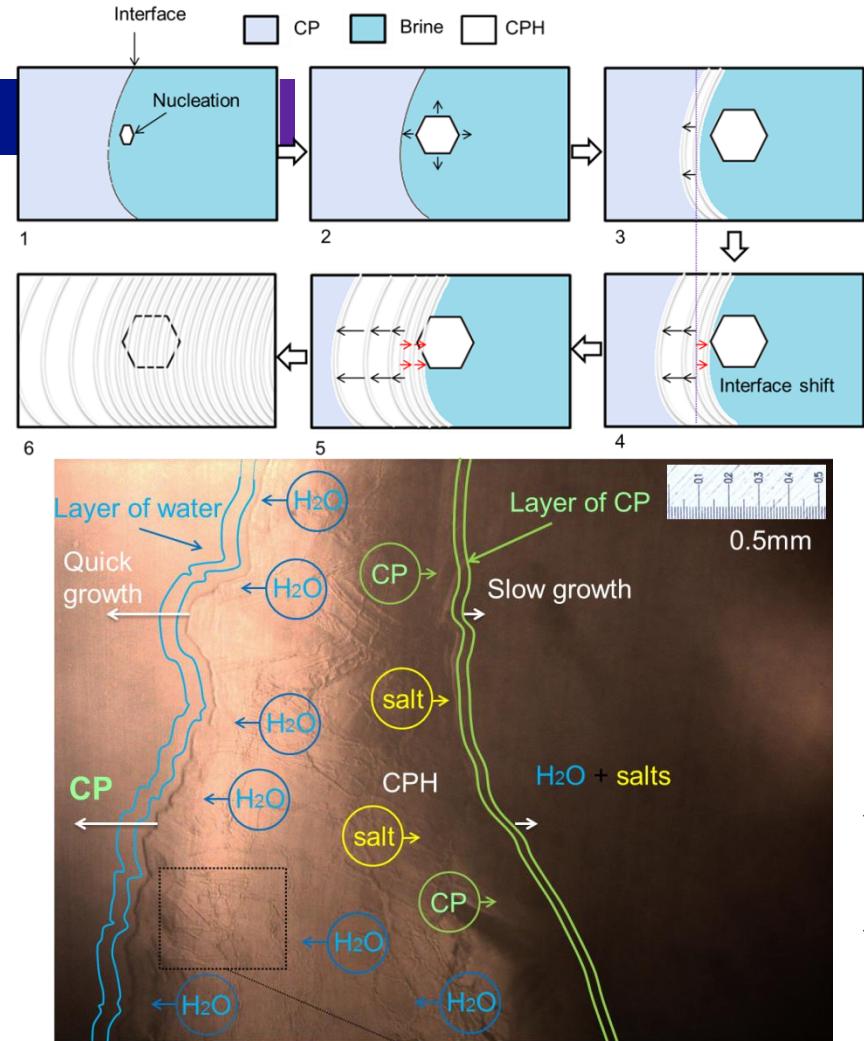
# Apparatus



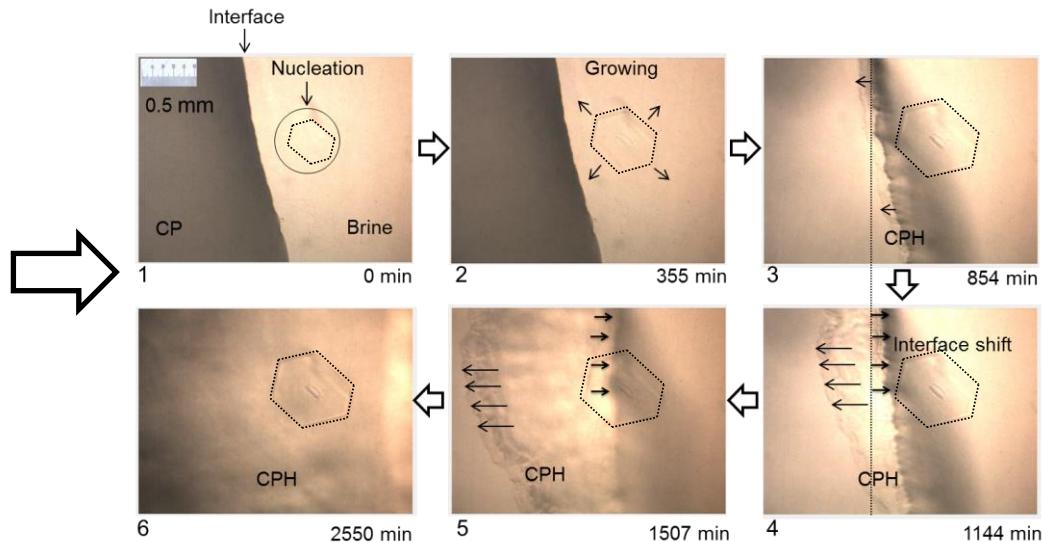
# Kinetic of CPH crystallization



## Crystallization Mechanism



With NaCl-KCl-MgCl<sub>2</sub> 5% at a subcooling of 3.5°C



## Conclusions:

- ❖ Morphology is comparable at the same  $\Delta T_{sub}$
- ❖ Size of individual crystals  $\downarrow$  when  $\Delta T_{sub} \uparrow$
- ❖ The growth rate  $\uparrow$  when  $\Delta T_{sub} \uparrow$
- ❖ Salts reduce the growth rate

Mass transfer





# Morphological Study of Cyclopentane Hydrates in Saline Water for Desalination Application

A word cloud visualization showing the translation of the words "merci" (thank you), "thank you", "gracias", "obrigado", and "dank je" (dank je) into various languages. The words are arranged in a cluster, with "merci" in red at the center, surrounded by "thank you" in blue, "gracias" in green, "obrigado" in orange, and "dank je" in yellow. Numerous other language translations are scattered around the central cluster.



Son HO-VAN (PhD student)

14/11/2018