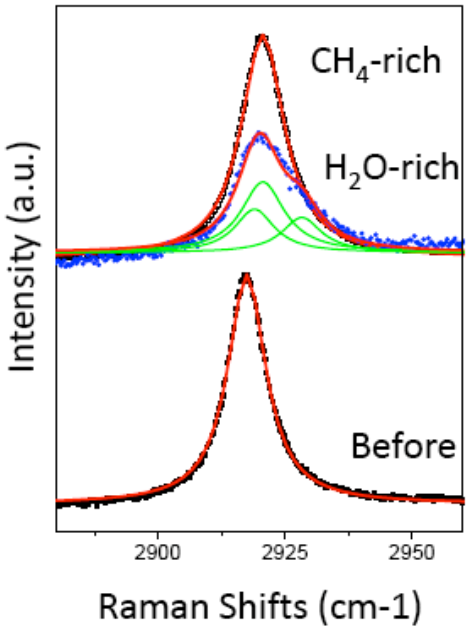
Highlight

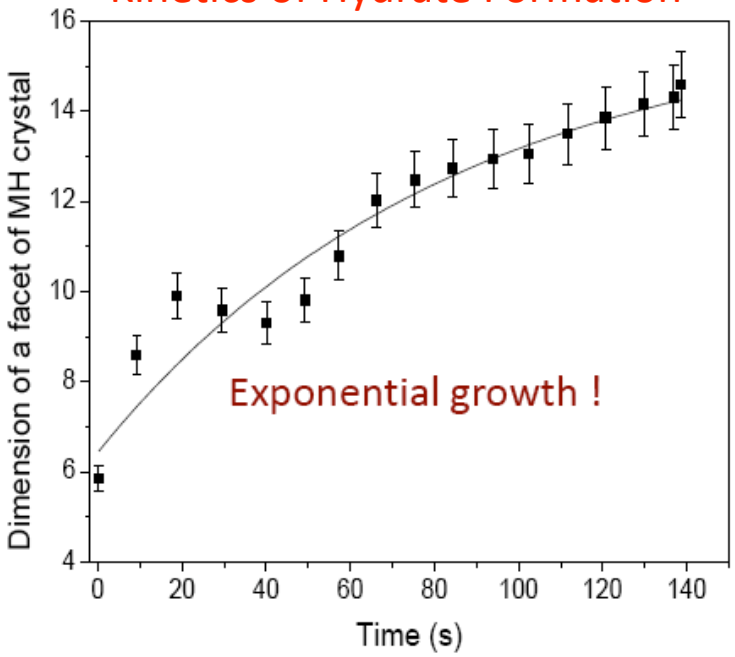
Formation of methane hydrates in *d*-DAC

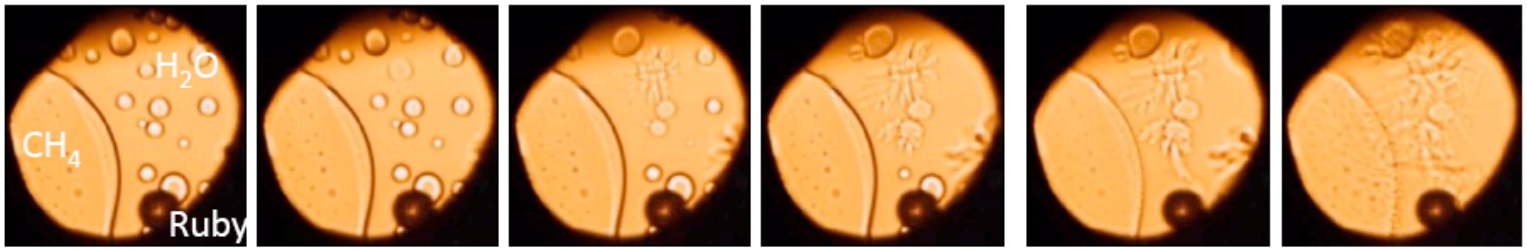
(ACS-PRF # 49207-ND10)

Raman of Hydrates



Kinetics of Hydrate Formation





J.Y. Chen and C.S. Yoo (PI) at WSU; (509) 335 – 2712. csyoo@wsu.edu

Washington State University
World Class. Face to Face.

Fig. 1 for Yoo (ACS-PRF # 49207-ND10)

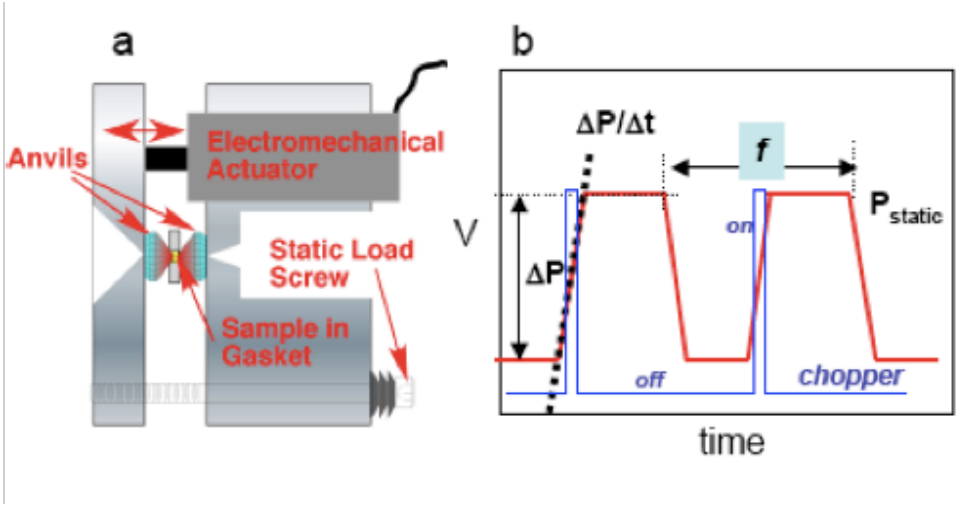


Figure 1 *(a) dynamic-DAC, incorporating piezo-electric actuator to a conventional DAC, (b) an Input pulse for piezo-actuator, determining the pressure-time history of d-DAC*

Fig. 2 for Yoo (ACS-PRF # 49207-ND10)

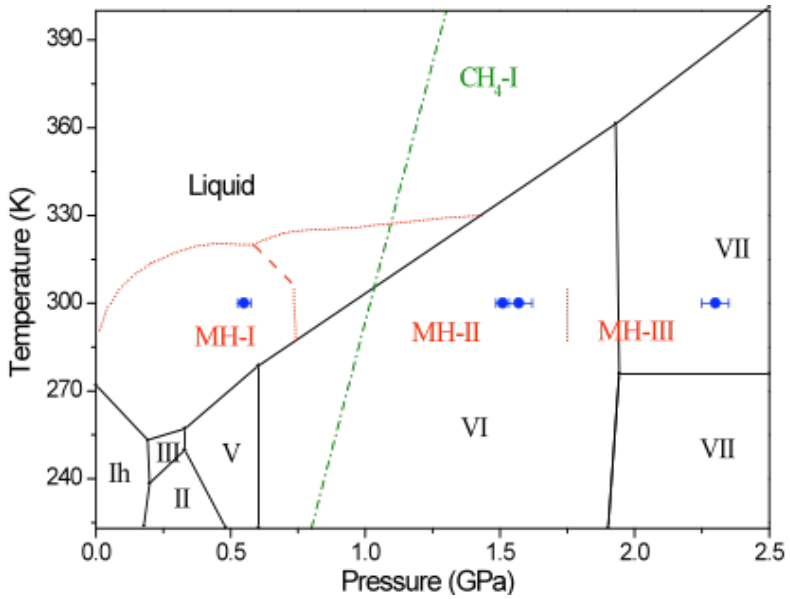


Figure 2. Phase diagrams of H_2O (solid lines), methane (dashed dotted lines) and methane hydrate (dotted lines). The solid circles represented the achieved maximum pressure during each run.

WASHINGTON STATE UNIVERSITY
World Class. Face to Face.

Fig. 3 for Yoo (ACS-PRF # 49207-ND10)

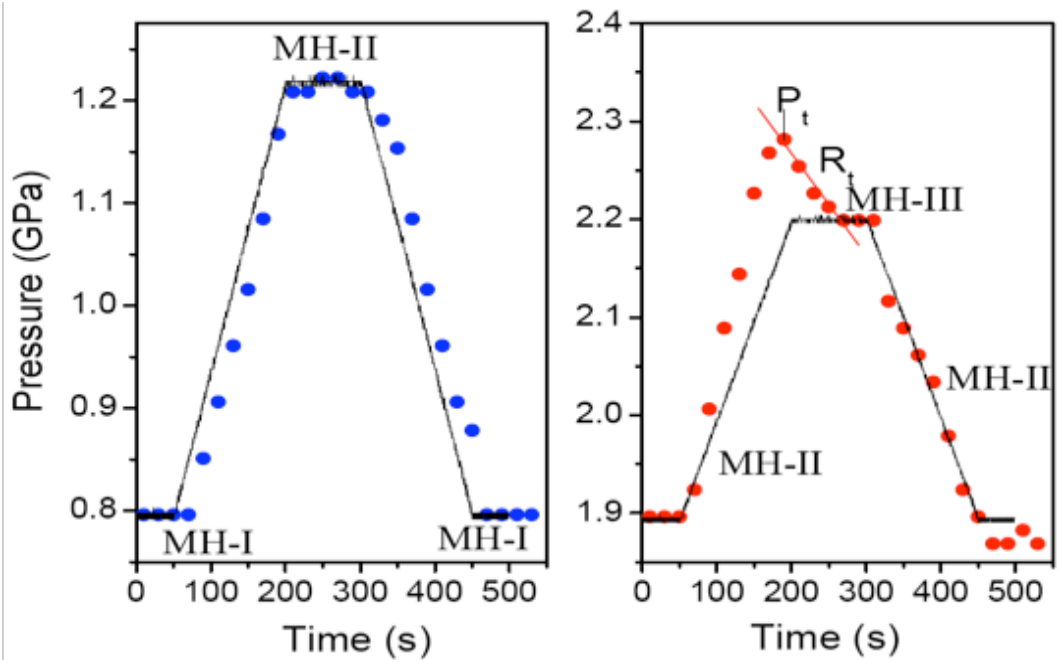


Figure 3. Time-resolved pressures determined during the solid-solid transitions of methane hydrate phases (MH) between MH-I and II (left) and MH-II to MH-III (right).

WASHINGTON STATE UNIVERSITY
World Class. Face to Face.

Fig. 4 for Yoo (ACS-PRF # 49207-ND10)

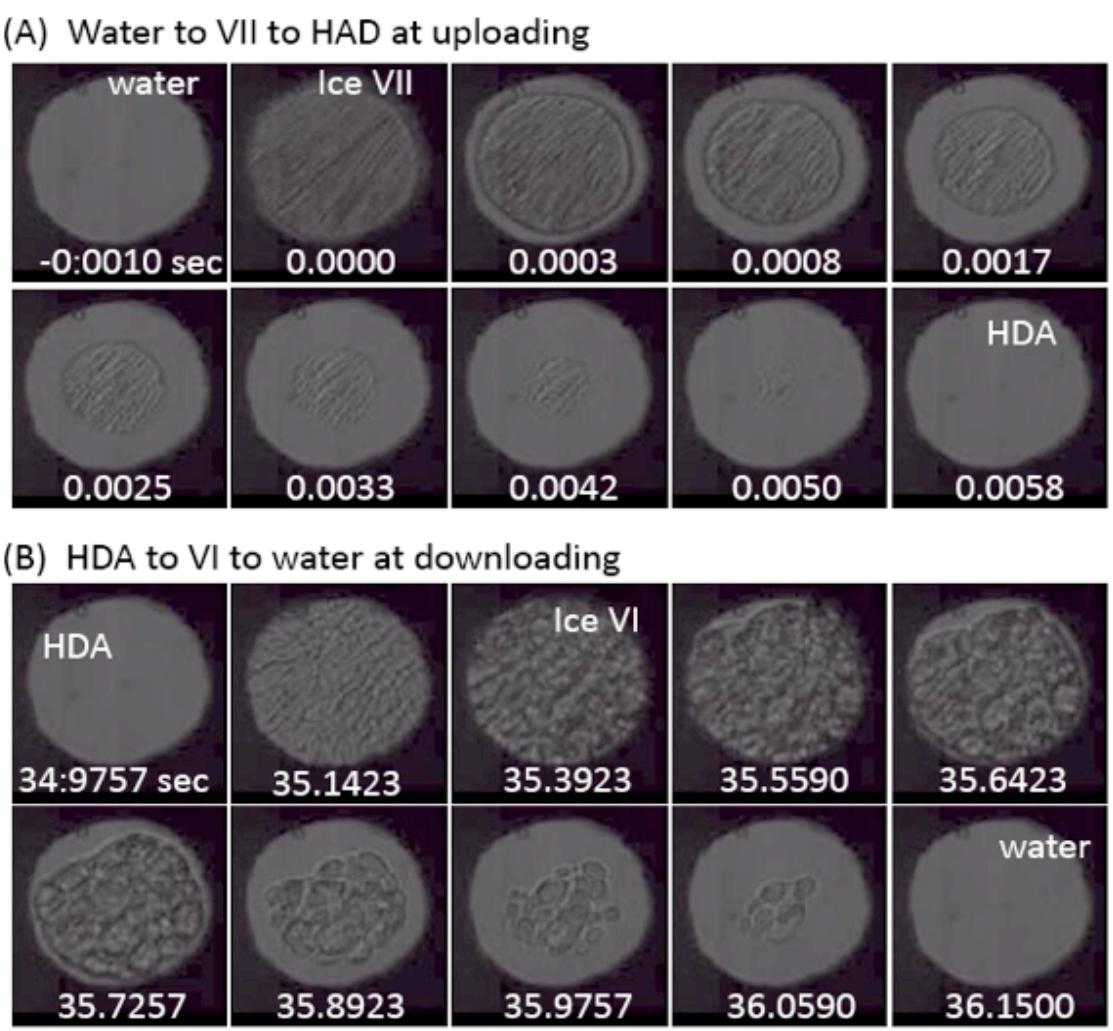


Figure 4. The fast microphotographic images of the water sample in d-DAC, taken during the pressure up (A) and down (B) loadings. These images exhibit a similarity between the amorphorization and melting processes of ice. The different H_2O phases (VI, VII, HDA, and water) were characterized by their characteristic Raman spectra, which were measured in real-time together with the pressures.

WASHINGTON STATE UNIVERSITY
World Class. Face to Face.