



OIST SEMINAR

Date: June 1st, 2015 (Mon)

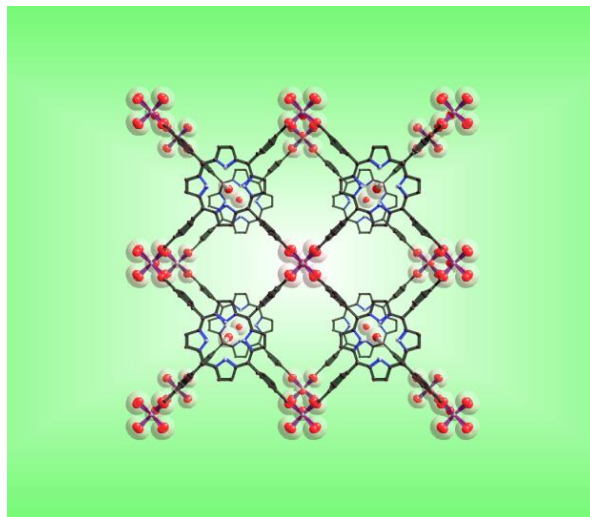
Time: 10:00 am – 11:00 am

Venue: B503, seminar room (Lab 1)

Speaker: Prof. Sahraoui Chaieb

【King Abdullah University of Science and Technology (KAUST), Saudi Arabia】

Buckling of macroscopic metal-organic-framework nanofilms



Abstract

MOFs (metal organic frameworks) are new types of porous crystalline materials that are composed of inorganic metal ions or ion-clusters coordinated to organic linkers to form one-, two-, or three-dimensional structures. MOFs have highly regular pores and cavities that provide an extremely high surface area/volume ratio making them very suitable candidates for applications in selective separation, filtration and storage of gases. We report the largest-area metal-organic framework (MOF) film to date, fabricated at the air-water interface (or iMOF). We used a Brewster Angle Microscope (BAM) to image the iMOF morphology transformation in-situ. To prove that the film is as large as the whole trough, we submitted it to a symmetric uniaxial compression, directly monitored with BAM and surface pressure measurement. BAM pictures during iMOF compression show stripes of buckling or fracture at a critical compression which shows that the film span the whole interface. The surface pressure is rugged showing the effect of the friction of the film on the water surface.

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