Advanced Lab / Master Thesis

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Stacking of molecular heterostructure photoresists toward atomically precise 3D printing of nanomembranes

Keywords: UHV, AFM, STM, XPS, **MD**, Raman, Photophysics

Update: Online Advanced Lab & remote supervision option available

Stacking 2D-material heterostructures is a promising method for composing the next generation of advanced materials (*Nature*, 499, 419–425, **2013**). Their supramolecular heterostructure counterparts are largely unexplored materials capable of bearing photopatternable units (*J. Am. Chem. Soc.*, 136, 12, 4651-4658, **2014**) for 3D printing down to the molecular scale. We have demonstrated 2-, 3-layer porphyrin stacks (**Figure 1**) and your project will deal with the further study a photoactive layer via physical vapor deposition under ultra-high vacuum and AFM characterization.

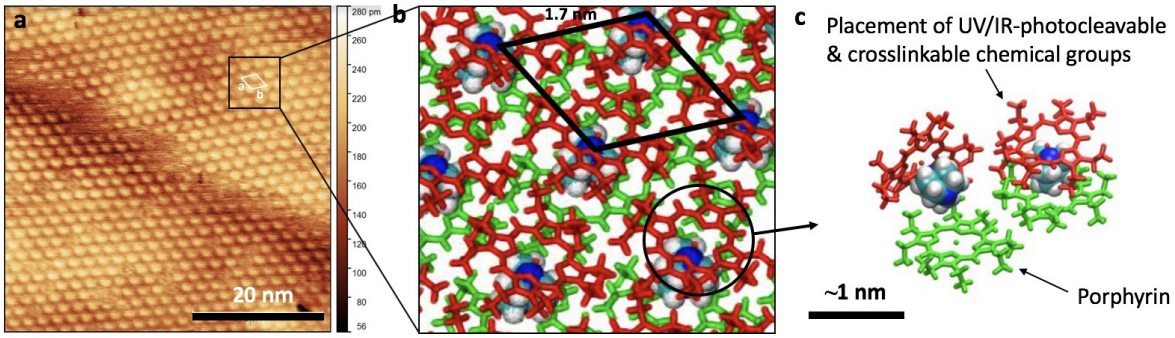

Figure 1. a AFM of crystalline porphyrin architecture on Au(111) and **b, c** Target third layer, potentially photoactive porphyrin

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