

ORGANIC FILMS

Thin Organic Films

Organic films are fairly easy to make and can be used to modify the surface of a material in order to target a specific functionality.

For instance, I coat clean silicon oxide (which is "water loving" or hydrophilic) with a single layer of a molecule (called octadecyltrichlorosilane, OTS) and it becomes water-repellant (hydrophobic).

In this way, I can create surfaces that interact in different ways with various molecules, specifically proteins and peptides.

Amazingly, these films are typically only 1 - 5 nanometers thick, which is 10 - 50 times the diameter of a hydrogen atom. Yet just this thin layer can dramatically change the behavior of the surface.

My thesis work was on studying the formation of OTS films using *in situ* x-ray reflectivity ("*in situ*" refers to the idea that the study was done while the film was forming). Currently, I am using these kinds of films for protein adsorption studies.

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