

Photoswitchable Wetting Properties of Metal Oxides

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Project description:

Adaptive materials have recently received enormous attention from the research community. They allow for a whole new range of functionalities and can behave differently depending on the applied stimulus. As an example, surfaces with adaptive wetting properties (<https://pubs.rsc.org/en/content/articlelanding/2017/cp/c7cp05848a/unauth#ldivAbstract>) will be able to combine the benefits of both water adhering and repellent behavior, which could lead to improved water harvesting from humid air; thereby, solving issues of water scarcity around the globe. In this project, you will explore the photoswitchable wettability of metal oxides.

Content:

Fabrication and characterization of ZnO and TiO₂ surfaces: Using Atomic Layer Deposition (ALD), metal oxide surfaces are fabricated and will have their macroscopic wetting properties characterized after different degrees of UV exposure. **Condensation experiments:** After successfully demonstrating the switchable wetting properties at the macroscale, you will perform a number of condensation experiments to show how water harvesting can be enhanced through the use of metal oxides.

The successful project will result in a publication

