

Spiropyran thin film preparation and photoswitching

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Wetting is a ubiquitous phenomenon that can be found in everyday situations such as a rain-soaked glass pane or a piece of rotten wood. However, it plays a key role in more sophisticated tasks that our society relies on, such as oil extraction, inject printing or protein adsorption.

In order to improve the wetting process and enhance its applications, it is necessary to understand the physicochemical properties of wetting. Surfaces that under external stimuli are able to switch from more hydrophobic to less hydrophobic states constitute a powerful tool to understand at the molecular scale the wetting process. The spiropyran/merocyanine (SP/MC) (Figure 1) pair of molecules are two isomers that can be switched to each other by light. The feature that makes them so interesting is the difference in their dipole moment which happens to take values from 4-6 D for spiropyran to 14-18 D for merocyanine.

In this work, we focus on the preparation of SP/MC thin films and study the change in the water contact angle of these films.

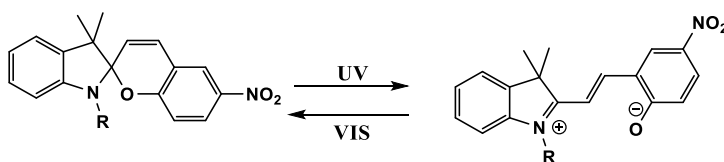


Figure 1.- Spiropyran/Merocyanine photoswitching isomers