

# Photoswitching of Azobenzene-Based Reverse Micelles above and at Subzero Temperatures

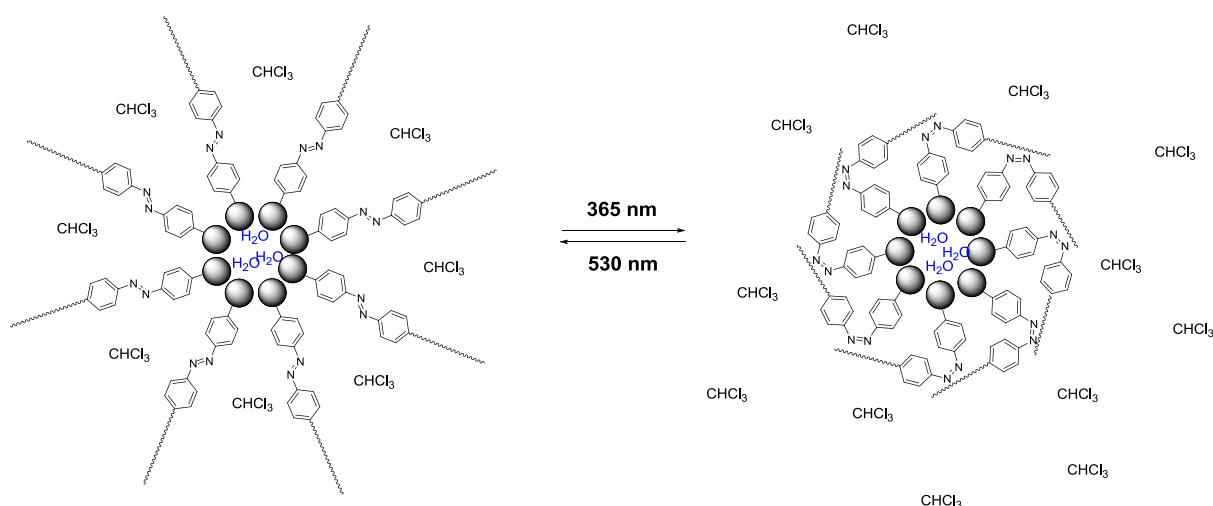
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Recently, our group has examined the formation and physico-chemical properties of reverse micelles in a ternary water/CTAB/chloroform-*d* system at room<sup>1</sup> and sub-zero temperatures.<sup>2</sup> The aim of this new study was to create photoresponsive reverse micelles from amphiphilic molecules that contain an azobenzene moiety and to study their properties when the N=N group undergoes a photoinduced *E/Z* isomerization.

The first part of the talk is focused on a synthesis of photoresponsive amphiphiles and their photochemical properties studied by NMR and UV-Vis spectroscopy. Subsequently, the ability of photoresponsive amphiphiles to form reverse micelles and determination of critical micelle concentration will also be discussed.

In the second part, the influence of the *E*→*Z* photoisomerization and the corresponding reverse thermal isomerization at different temperatures, and its effect on the character of reverse micelles and encapsulated water, will be discussed. The experimental data and molecular dynamics simulations results will be reviewed.<sup>3</sup>



1. Klíčová L., Šebej P., Štacko P., Filippov S. K., Bogomolova A., Padilla M., Klán P., *Langmuir* **2012**, 28, 15185-15192.

2. Klíčová L., Muchová E., Šebej P., Slaviček P., Klán P., *Langmuir* **2015**, 31, 8284-8293.

3. Filipová L., Kohagen M., Štacko P., Muchová E., Slaviček P., Klán P., *Langmuir* **2017**, 33, 2306-2317