

Azobenzenes and Diazocines for Light Switchable Materials

Anne Staubitz
University of Bremen

Azobenzenes, be it in a linear arrangement or in rings, are important molecular switches that can change their geometry by the absorption of light of specific wavelengths. Although this is well-established, the demands of biologists and materials scientists for very specific requirements in terms of switching wavelengths, half-live times and chemical functionality have increased steeply. Synthetic chemists often find that if one strays beyond the well-known and established, there are no synthetic routes available, which must be newly invented. As a consequence, with such methods available, new, exciting and often unexpected materials developments can take place.

This presentation will present new synthetic methodology that was recently invented in our laboratories. In addition, new materials that arise from these azobenzenes and diazocines will be shown: The liquid crystals were analysed by DSC and POM and their photomechanical effect was demonstrated visually.

A new design principle was developed that allowed to confer liquid crystallinity to azobenzene based switching liquid crystals that bend with visible light.

We have now a material available that can be used in the area of soft robotics.

References

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