

## Electric-Field-Assisted Acceleration of the Photo-Stimulated Nematic-Isotropic Transition

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We describe a novel accelerated means<sup>(1)</sup> of recovering the equilibrium from the photoisomerization-driven state. The employed guest-host system consists of the photoactive guest azobenzene and host nonphotoactive molecules exhibiting a nematic mesophase. Irradiation of the sample with UV radiation results in a photo-driven, from the equilibrium nematic phase to the isotropic phase. The relaxation to the equilibrium phase takes place spontaneously, albeit, very slowly. We demonstrate that with an applied electric field the recovery occurs at least “two orders of magnitude faster”. The rapid recovery is associated with the faster reverse isomerisation from the cis to the trans form of azobenzene and also observed in the isotropic phase, and hence applicable to all systems connected with such isomerisation processes. Since the recovery time depends on the magnitude of the applied field, it provides a convenient tool to control the duration of the recovery, a feature useful in tailoring the value of birefringence in optical devices. Different possible causes for the observed behaviour are discussed.

### References

(1) S. Krishna Prasad, Geetha G. Nair, and V. Jayalakshmi *Adv. Mater.* **2008**, *20*, 1363

### Figures

