Photoinstability of azo-containing banana-shaped liquid crystal

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With triangular wave method, we have studied the electro-optical properties of an azo-containing banana-shaped antiferroelectric liquid crystal as a function of the time of 365nm ultraviolet irradiation. Under the 365 nm irradiation, the polarization currents of the banana-shaped liquid crystal were observed to evolve with the time of ultraviolet irradiation until they get completely diminished after an extended duration of ultraviolet irradiation. On the basis of the optical absorptions and calculated electronic structures of the azo-containing banana-shaped liquid crystal, our results suggest that photoisomerization, photolysis and thermolysis have played important roles in the photoinstability of the azo-containing banana-shaped liquid crystal.

References

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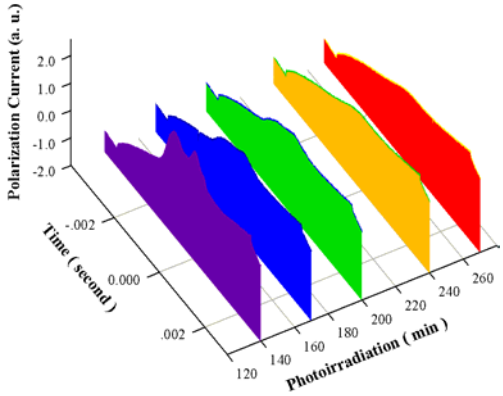

Figure 1. Evolution of the polarization response of the banana-shaped LC with photo-irradiation time.