

## 〔物質生命化学科〕

### 36－53 Discontinuous change in the helical pitch of cholesteric liquid crystals by photoisomerization of a chiral azobenzene molecule.

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This paper describes discontinuous change in a helical pitch of a cholesteric liquid crystal (Ch LC) by means of photoisomerization of chiral azobenzene molecules under homogenous alignment condition. A mixture of E44, R811 and Azo was prepared at the weight ratio of 68, 28 and 4 wt%. R811 and Azo have an opposite twisting ability in such a way that R811 and Azo induce right and left-handed helices when they are doped in E44, respectively. The mixture was injected in a homogenous glass cell with 2 and 5  $\mu\text{m}$  cell gap. The wavelength of the reflection from the Ch LC was shifted to shorter wavelength by the trans-cis photoisomerization of Azo. The change in the helical pitch was not only discontinuous, but also dependent on the cell thickness. The discontinuous change in the helical pitch was estimated to be almost the same as the half turn of the helical pitch in each cell gap, and was dependent on the number of the helical half pitch in the glass cell. The homogenously alignment condition affects the photochemical change in the helical structure of the Ch LC system.

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