## 1,8位で連結したフルオレニル大環状化合物の合成と物性評価

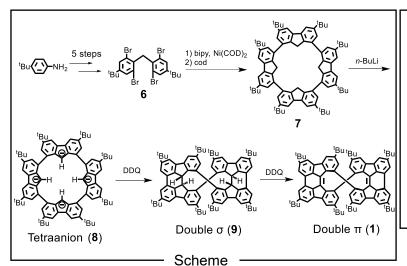
(阪大院理) ○上野 佳子・西内 智彦・久保 孝史

Studies on the synthesis of a fluorenyl-based cyclic tetrameric compound and its anionization (*Graduate School of Science, Osaka University*) CKako Ueno, Tomohiko Nishiuchi, Takashi Kubo

Cylindrical molecules with chirality have recently attracted much attention as an ideal structure to show strong circularly polarized luminescence. Recently we have succeeded in synthesizing a fluorenyl macrocyclic molecule **1** with a rigid framework and chirality, using 4-*tert*-butylaniline as a starting material. We first synthesized **6** from 4-*tert*-butylaniline in a five-step reaction. Next, the intramolecular and intermolecular cyclization of **6** was carried out simultaneously to obtain a cyclic tetramer compound **7** linked at positions 1 and 8. **7** was reacted with *n*-BuLi to produce tetraanion **8**, which was subsequently oxidized with DDQ to double  $\sigma$  **9**. Finally, **9** was oxidized with DDQ to synthesize the double  $\pi$  **1**. Its structure was determined by X-ray crystal analysis, and <sup>1</sup>H NMR suggested that the four fluorenyl rings were equivalent. We will report on its optical properties.

Keywords: Tetrafluorenyl; Macrocyclic compounds; Shape-Persistent; Chirality; Circularly Polarized Luminescence

キラリティを有する筒状分子は、強い円偏光発光を発現する理想的な構造として最近注目を集めている。最近我々は、4-tert-butylaniline を出発物質として剛直な骨格でキラリティを持つフルオレニル大環状分子  $\mathbf{1}$  を合成することに成功した。まず最初に 4-tert-butylaniline から  $\mathbf{5}$  段階の反応を行い、 $\mathbf{6}$  を合成した。次に  $\mathbf{6}$  の分子内環化と分子間環化を同時に行い、 $\mathbf{1}$  7、8位で連結した環状四量体化合物  $\mathbf{7}$  を得た。 $\mathbf{7}$  を  $\mathbf{n}$ -BuLi と反応させて、テトラアニオン  $\mathbf{8}$  を生成し、DDQ での酸化を行ってダブル  $\mathbf{6}$  体  $\mathbf{9}$  へと導いた。最後に  $\mathbf{9}$  を DDQ で酸化してダブル  $\mathbf{7}$  体  $\mathbf{1}$  を合成した。その構造は  $\mathbf{X}$  線結晶構造解析より決定し、 $\mathbf{1}$   $\mathbf$ 





X-ray crystal structure of **1**. H atoms and <sup>t</sup>Bu groups are omitted for clarity.