

## ビナフチル骨格の二面角に着目した円偏光発光 (CPL) 活性分子の開発と積層化

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Development and oligomerization of CPL-active molecules focused on the dihedral angle of the binaphthyl skeleton. (<sup>1</sup>Graduate School of Life and Environmental Sciences, Kyoto Prefectural University, <sup>2</sup>Graduate School of Science and Engineering, Kindai University) ○ Yuuki Nagaya<sup>1</sup>, Shinya Fujio<sup>1</sup>, Ayumi Imayoshi<sup>1</sup>, Takahiro Kimoto<sup>2</sup>, Keita Okada<sup>2</sup>, Yoshitane Imai<sup>2</sup>, Kazunori Tsubaki<sup>1</sup>

Circularly polarized luminescence (CPL) is defined as luminescence with a difference in the intensity of the left and right circular polarizations. The CPL activity is evaluated by  $g_{lum}$  value which shows the anisotropy of the emission. Various CPL active molecules have been developed so far, but it is not yet clear how to design molecules to show high  $g_{lum}$  values. When the upper and lower naphthalene of BINOL is bridged by carbon chains, the dihedral angle changes corresponding to the number of cross-linked carbons. The relationship between the number of bridged carbon atoms and CPL was investigated. As a result, it was suggested that binol bridged with one carbon was suitable as a basic skeleton of CPL active molecule. In addition, binaphthyl was oligomerized and their functions were evaluated.

**Keywords :** Circularly Polarized Luminescence; Binaphthyl; Dihedral angle;

左右の円偏光強度に差があるキラルな発光を円偏光発光 (CPL) と呼ぶ。CPL 活性は発光の異方性を示す因子 ( $g_{lum}$  値) によって評価される。これまでも様々な CPL 活性分子が開発されてきたが、高い  $g_{lum}$  値を示すための分子設計の指針は未だ解明されていない。

ビナフチルは炭素によって上下のナフタレン環を架橋すると、その架橋炭素数に対応して二面角が変化することが予測された。そこでビナフチルの架橋炭素数と CPL の関係を精査した。その結果、一炭素で架橋したビナフチルが CPL 活性分子の基本骨格として最適であることが示唆された。またビナフチルを積層化し、その機能評価を行った。

