

Synthetic Study on Perfluorinated Rylenes for Optoelectronics

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Perfluorination of aromatic compounds has been known as a useful strategy to give rise to dramatically change of their electronic state. In the area of catalyst materials, catalytic activity and transition state have been well-dominant by electron-withdrawing property of fluorine atom. In the area of carbon materials, perfluorination is able to change the semiconducting properties from p- to n-type and realize to develop organic semiconductor with highly efficient electron mobility. Furthermore, perfluorination contributes understanding the solid states nature of their materials.

Momiyama, speaker in this poster, has worked on the development of perfluorinated binaphthyl compounds as catalyst materials, in which functionalization of perfluorobinaphthyls have been established.^[1] Prof. Suzuki, collaborator in this study, is one of the specialist in the development of organic semiconductor and found that perfluoropentacene, perfluorotetracene, and perfluororubrene show highly electron mobility.^{[2][3]}

Integration of Momiyama and Suzuki's research area, we have been interested in the synthesis of perfluorinated rylenes as new targets toward application to optoelectronics. Recent results will be presented in this symposium.

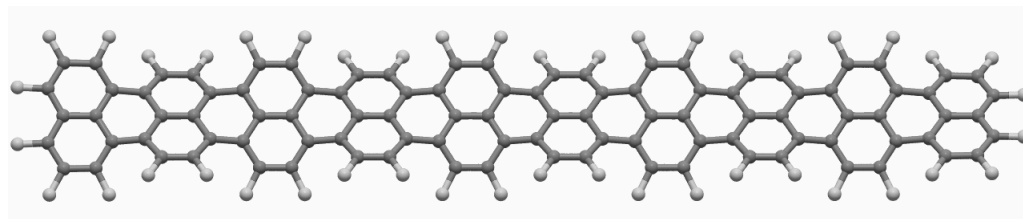
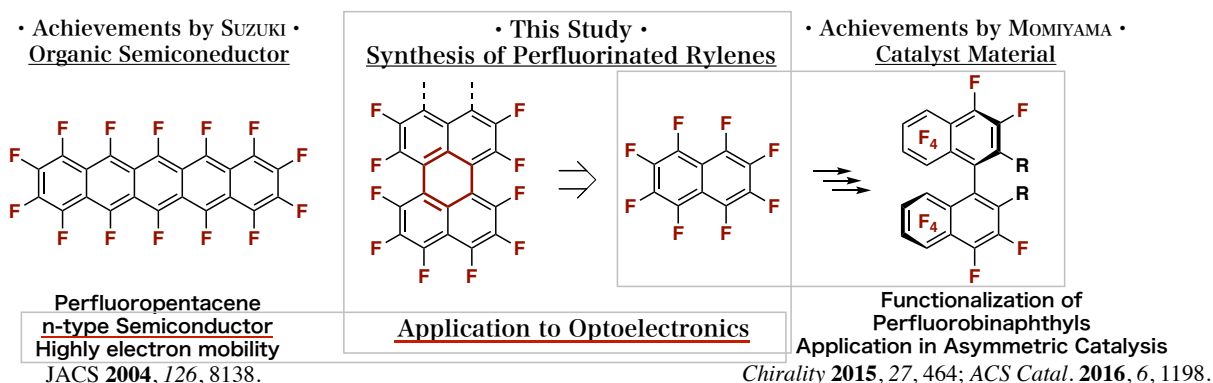


Figure 1. Synthetic Study on Perfluorinated Rylenes and application to Optoelectronics.

Bibliography

- [1] **Momiyama, N.**; Okamoto, H.; Kikuchi, J.; Korenaga, T.; Terada, M. *ACS Catal.* **2016**, 6, 1198.
[2] Sakamoto, Y.; **Suzuki, T.** *J. Org. Chem.* **2017**, 82, 8111.
[3] Sakamoto, Y.; **Suzuki, T.**; Kobayashi, M.; Gao, Y.; Fukai, Y.; Inoue, Y.; Sato, F.; Tokito, S. *J. Am. Chem. Soc.* **2004**, 126, 8138.

External links

<https://www.ims.ac.jp/research/assoc/momiyama.html>
<https://www.ims.ac.jp/research/assoc/suzuki.html>