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日時: 2017年7月31日(月) 13:00~

場所: 九州大学 共進化社会システムイノベーション施設 2F大会議室

Organic rigid backbone and optoelectronic materials

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The organic molecules with rigid backbone are of particular interest in developing optoelectronic materials. As typical robust construction ways, the ladder-type and spiro-type concepts are utilized to fix the conjugation system and confine the molecular rotation. This presentation will summarize the progress of our group in preparing relative materials for organic photovoltaics (OPVs) and organic light-emitting diodes (OLEDs). To be specific, the ladder-type molecules are easy for carrier transport and minimizing the energy gap, thus they can act as good fused-ring electron acceptors in heterojunction organic solar cells. The great potential to replace costly fullerene derivatives motivates us to study the new energy relationship and design new backbone for high performance. On the other hand, the spiro-type molecules generally have a perpendicular configuration which is proved to be thermally and morphological stable. We strive to use the spiro-center to separate donor and acceptor to obtain a series of new bipolar materials, which can be used as host materials and TADF emitters.

**主催: 九州大学 最先端有機光エレクトロニクス研究センター
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