

## Synthesis of Perylene-3,4-mono(dicarboximide)–Fullerene C60 Dyads as New Light-Harvesting Systems

Submitted by Emmanuel Lemoine on Tue, 02/04/2014 - 16:12

Titre Synthesis of Perylene-3,4-mono(dicarboximide)–Fullerene C60 Dyads as New Light-Harvesting Systems

Type de publication Article de revue

Auteur Baffreau, J r me [1], Ordronneau, Lucie [2], Leroy-Lhez, St phanie [3], Hudhomme, Pi trick [4]

Type Article scientifique dans une revue   comit  de lecture

Ann e 2008

Langue Anglais

Date 2008/08

Num ro 16

Pagination 6142 - 6147

Volume 73

Titre de la revue The Journal of Organic Chemistry

ISSN 0022-3263

R sum  en anglais

Fullerene C60–perylene-3,4-mono(dicarboximide) (C60–PMI) dyads 1–3 were synthesized in the search for new light-harvesting systems. The synthetic strategy to the PMI intermediate used a cross-coupling Suzuki reaction for the introduction of a formyl group in the ortho, meta, or para position. Subsequent 1,3-dipolar cycloaddition with C60 led to the target C60–PMI dyad. Cyclic voltammetry showed that the first one-electron reduction process unambiguously occurs onto the C60 moiety and the following two-electron process corresponds to the concomitant second reduction of C60 and the first reduction of PMI. A quasi-quantitative quenching of fluorescence was shown in dyads 1–3, and an intramolecular energy transfer was suggested to occur from the PMI to the fullerene moiety. These C60–PMI dyads constitute good candidates for future photovoltaic applications with expected well-defined roles for both partners, i.e., PMI acting as a light-harvesting antenna and C60 playing the role of the acceptor in the photoactive layer.

URL de la notice <http://okina.univ-angers.fr/publications/ua1933> [5]

DOI 10.1021/jo800804z [6]

Lien vers le document <http://dx.doi.org/10.1021/jo800804z> [6]

---

### Liens

[1] [http://okina.univ-angers.fr/publications?f\[author\]=2559](http://okina.univ-angers.fr/publications?f[author]=2559)

[2] [http://okina.univ-angers.fr/publications?f\[author\]=2560](http://okina.univ-angers.fr/publications?f[author]=2560)

[3] [http://okina.univ-angers.fr/publications?f\[author\]=2555](http://okina.univ-angers.fr/publications?f[author]=2555)

[4] <http://okina.univ-angers.fr/pietrick.hudhomme/publications>

[5] <http://okina.univ-angers.fr/publications/ua1933>

[6] <http://dx.doi.org/10.1021/jo800804z>

Publié sur *Okina* (<http://okina.univ-angers.fr>)