

IRG PHENICS ON-GOING COLLABORATION

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| Title of the collaboration: | Establishment of Guiding Principles of Molecular Design toward High-performance Photochromic Compounds |
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| COUNTRY A: | FR | COUNTRY B: | JP |
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| Name of group/Institution: | Lille 2 University, CNRS 8516 | Name of group/Institution: | YNU – Dpt Advanced Materials Chemistry |
| Name: | S. DELBAERE | Name: | Y. YOKOYAMA |
| Other participants: | J. BERTHET, F.ERKO, N. MOUTON | Other participants: | M. FUKAGAWA, K. TAKAGI |
| Role in the collaboration: | Spectroscopy studies; kinetic and structural properties, NMR | Role in the collaboration: | Synthesis and photochromic properties, DFT, X-Ray |

| Background, objectives, results: | Figure: |
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| <p>This goal of common research is the synthesis and the photochemical/thermal property studies of new bisarylindenols, to achieve highly stereoselective and large quantum yield of photocyclizations, and of substituted diarylethenes, to achieve highly enantioselective photochromic reactions in chiral media for photoreactions.</p> | <p>The figure illustrates the photocyclization of bisarylindenol 10. Under UV light, 10 (where R = Me, Ph, tBu, etc.) cyclizes to form a mixture of two enantiomers, 1C_{major} and 1C_{minor}. Below this reaction, three other photochromic compounds are shown: 20 (a bisarylethene derivative), 30 (a bisarylethene derivative with two hydroxyl groups), and 40 (a bisarylethene derivative with two pyridine rings).</p> |

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| Common publications, communications, bilateral funding, invitation funding, cotutoring of students, ...: | <ul style="list-style-type: none"> ▪ Oral communication - ISOP, Yokohama (Japan) 17/22 October 2010 ▪ JSPS-CNRS project applied in 2011 |
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