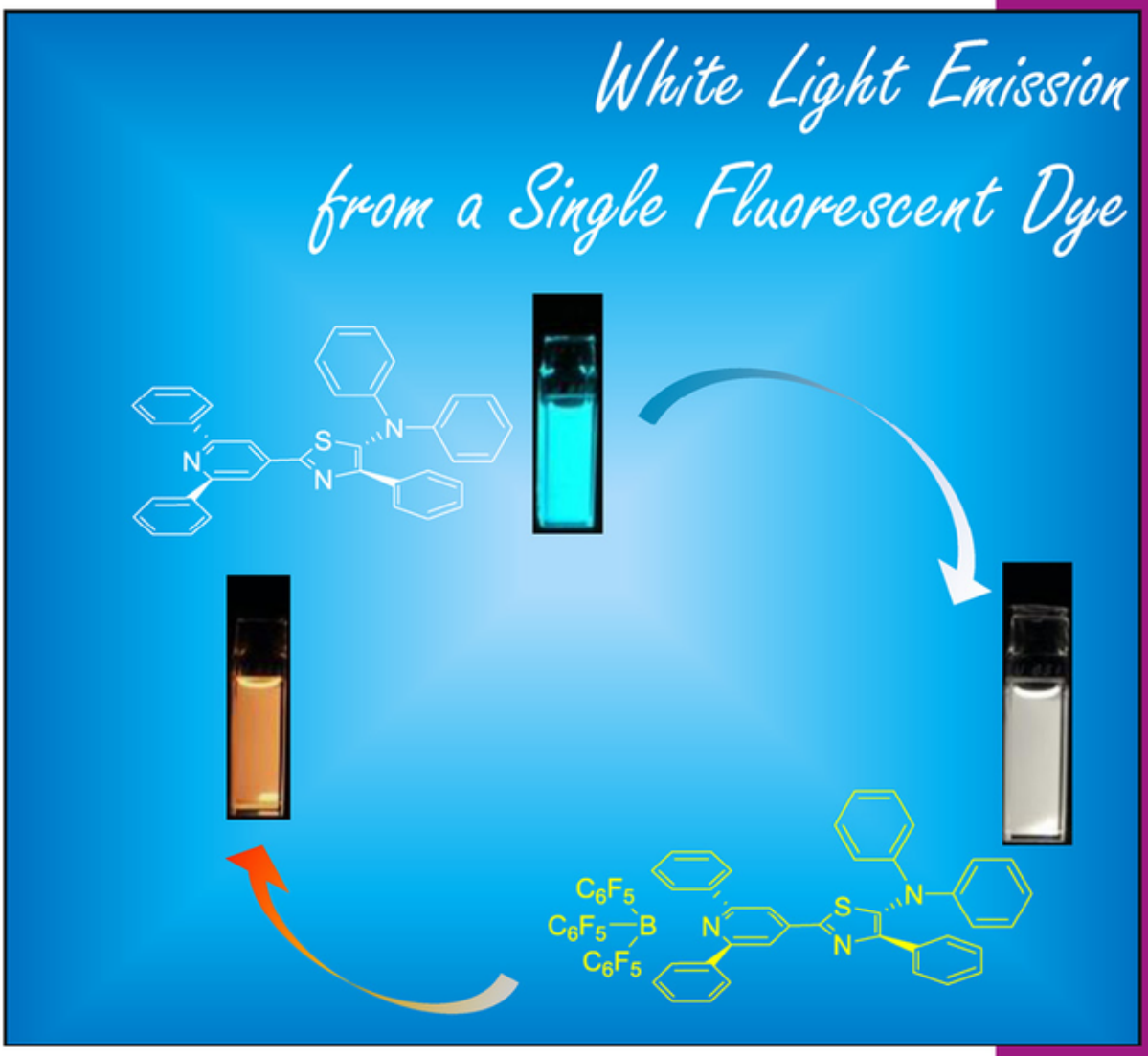
ChemistryOPEN
Including Thesis Treasury
5/2016
Open Access



Front Cover:
T. Murai and co-workers
Acid-Responsive Absorption and Emission of 5-*N*-Arylaminothiazoles: Emission of White Light from a Single Fluorescent Dye and a Lewis Acid

Wiley Open Access

WILEY-VCH

A Journal of
ChemPubSoc Europe

ChemPubSoc Europe
DOI: 10.1002/open.201600106
Open Access ChemistryOPEN Cover Profile

Acid-Responsive Absorption and Emission of 5-*N*-Arylaminothiazoles: Emission of White Light from a Single Fluorescent Dye and a Lewis Acid

岐阜大学
GIFU UNIVERSITY

The Murai group

The front cover artwork is provided by the group of Toshiaki Murai at Gifu University (Japan). The image shows structures of the key compounds and the change of the fluorescence. Although electron-donating and -accepting groups are not in the same plane, they show relatively strong fluorescence from blue to orange. For more details, read the full text of the Communication at 10.1002/open.201600059.

What is the most significant result of this study?

It is white-light emission with a single fluorescence monocyclic molecule. White-light emission is one of the important phenomena applicable to OLED as well as bio- and chemosensors. In this regard, several strategies are reported. Unlike previously reported techniques, here the combination of a single fluorescent dye working as a base and a Lewis acid produces white-light emission. In a solution, two species are present, that is, the starting fluorescent dye and a 1:1 complex between the dye and $B(C_6F_5)_3$, and their ratio sequentially changes the emission color.

What was the inspiration for this cover design?

It was inspired by three characteristic features of our results. First is the fine tuning of the emission color. Second is that it is reversible. Third, the electron-donating and -accepting groups in the fluorescent dye are deviated by about 60°.

Who designed the cover?

Ph.D. candidate Ms. Kirara Yamaguchi designed it. She has been involved in this research for more than 5 years, and has to finish working on the project despite the fact that she has discovered so many potential applications of her molecules. Before she joined our group, we mainly focused on the development of new reactions and structurally interesting organic molecules with main-group elements. She enabled us to shift our research to explore their photophysical and electrochemical properties.

Is your current research mainly curiosity driven (fundamental) or rather applied?

It is curiosity driven. I usually draft our research theme with a simple point, for example, what happens if one element in an organic molecule is replaced with a heavier element? Fundamental knowledge of chemistry gives us many hints and ideas for the synthetic procedures and properties of unprecedented molecules. We then start our actual research. Even so, we achieve unpredicted phenomena and compounds. Some of them give us the chance to explore isolated, but brilliant, chemistry.

Acknowledgement

This work was supported by the following grants-in-aid: Scientific Research on Innovative Areas (MEXT), "Stimuli-Responsive Chemical Species for the Creation of Functional Molecules" as well as ACT-C from the Japan Science and Technology Agency (JST).