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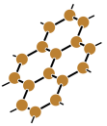

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Book of abstracts

Riga – 2020

RIGA TECHNICAL UNIVERSITY
61st International Scientific Conference
"MATERIALS SCIENCE AND APPLIED CHEMISTRY 2020"
Riga, 2020, 84 pp.

ISBN: 978-9934-22-530-7

Purine-phenoxazine and purine-phenothiazine conjugates

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Several reports about fluorescent properties of purine derivatives have been published till now.[1-4] Such compounds are often used for fluorescent cell labeling, however research into purine photophysical properties for application in materials science is rare. Currently there is only investigation of purine derivatives as fluorecent emitters in OLEDs by Castellano's group[5,6] and a single publication about development of fluorescent purine derivatives as emitters exibiting thermally activated delayed fluorescence (TADF).[7]

In this research, phenoxazine and phenothiazine groups were introduced as electron donors in an electron deficient purine system through a meta-connected benzene ring bridge to facilitate thermally activated delayed fluorescence. Mitsunobu reaction and Suzuki-Miyaura coupling afforded the target compounds **1**-**4** (Figure 1). Photophysical properties of the synthesized purine derivatives were explored and quantum yields in the thin layer film reached up to 8 % and in the PMMA doped thin layer film up to 15 %.

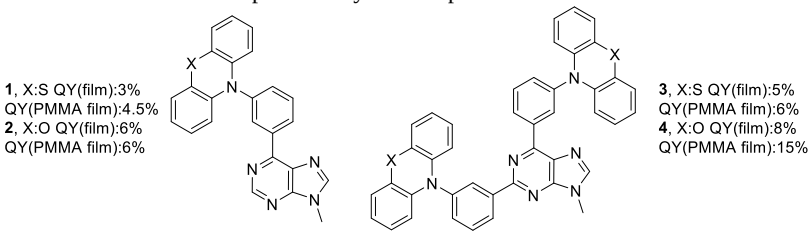

Figure 1. Purine derivatives with phenoxazine and phenothiazine electron donating groups

Acknowledgements

This work is supported by the Latvian Council of Science grant No LZP-2018/2-0037.

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