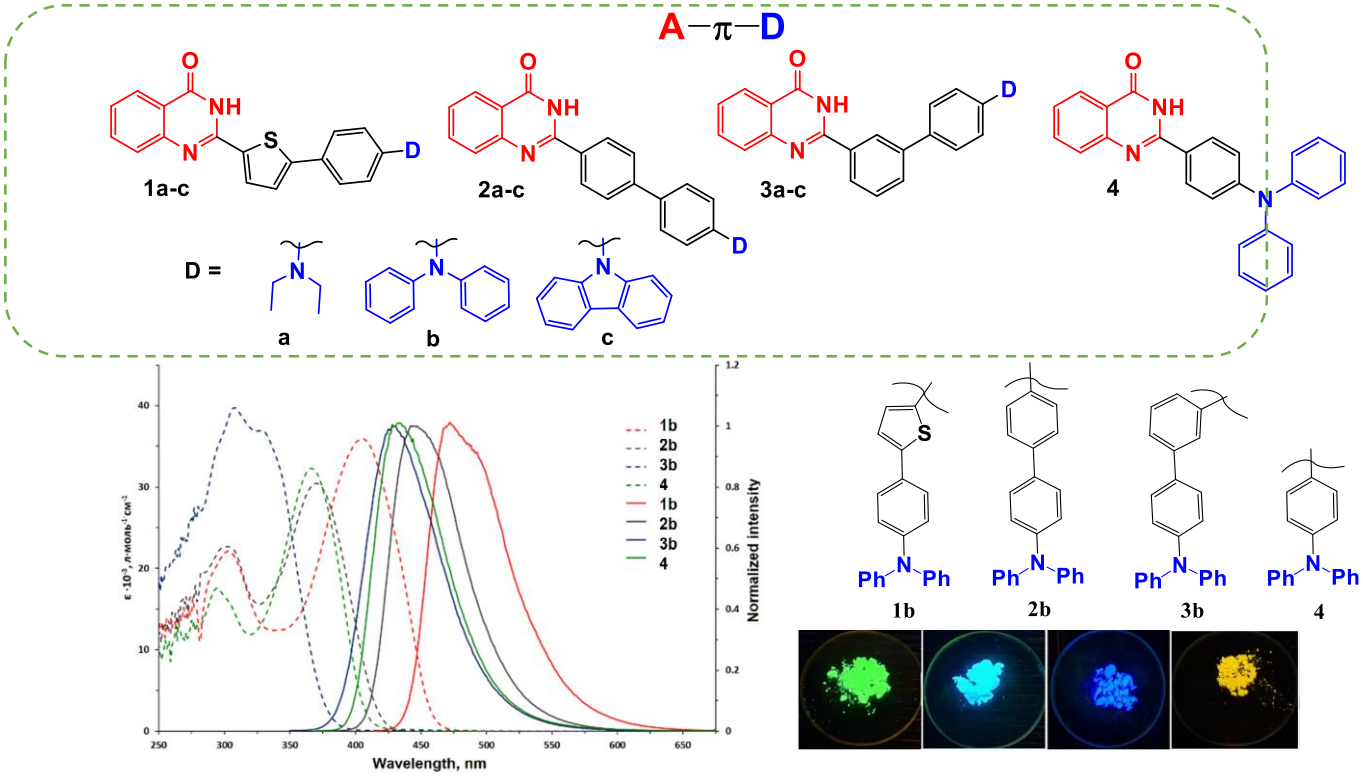
PR-132
QUINAZOLINONE CONTAINED CHROMOPHORES: TUNING OF PHOTOPHYSICAL PROPERTIES

Moshkina T. N.[1]*, Nosova E. V.[1,2], Lipunova G. N.[2], Charushin V. N.[1,2]
[1] *Chemical Technology Institute, UrFU, 620002 Ekaterinburg, 19 Mira St.;*
[2] *Institute of Organic Synthesis, 620219 Ekaterinburg, 22 S. Kovalevskoy St.*
*E-mail: tan.moshckina@yandex.ru

Abstract. Quinazoline scaffold (including quinazolinone form) represent promising building block for construction of small-molecule chromophores of D–A or D–π–A architecture. The quinazoline containing derivatives proved to possess strong luminescence, AIE, TADF, NLO, mechanochromic properties, sensing ability.[1-4] Some of them can be used as OLED materials.

The scope of quinazoline containing chromophores have been synthesized by Pd-catalyzed cross-coupling reaction with three types of boronic acids. The alteration of π-spacer led to luminescent products covering blue-yellow range of spectrum.



The quantum yields of chromophores was reached to 84% in toluene solution and 40 % in solid state. The solvatochromic as well as AIE properties have been analyzed for synthesized compounds.

References

5. Preparation and photophysical properties of quinazoline-based fluorophore / Z. Wang, H. Li, Z. Peng [et al.] // RSC Adv. – 2020. – Vol. 10. – P. 30297–30303.

6. Quinazoline-based thermally activated delayed fluorescence for high-performance OLEDs with external quantum efficiencies exceeding 20% / B. Li, Z. Wang, S-J Su [et al.] // Adv. Optical Mater. – 2019. – P. 1801496.

7. Electron-Withdrawing Substituted Quinazoline Push-Pull Chromophores: Synthesis, Electrochemical, Photophysical and Second-Order Nonlinear Optical Properties / T. N. Moshkina, P. Le Poul, A. Barsella [et al.] // Eur. J. Org. Chem. – 2020. – P. 5445–5454.

8. Synthesis, Photophysical and Optoelectronic Properties of Quinazoline-Centered Dyes and their Applications in Organic Light-Emitting Diodes / Z. Zhang, J. Xie, H. Wang [et al.] // Dyes and Pigments. – 2016. – Vol. 125. – P. 299–308.

This work was supported by the Russian Science Foundation (grant # 21-13-00304)