# $S_N^H$-reactions and other cross-dehydrogenative coupling processes for the construction of 1,3-/1,4-diazine-based polycyclic systems

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Polycyclic(hetero)aromatic compounds are ubiquitous structural motifs, which are to be found in a variety of enhanced materials for organic electronics and pharmaceutical applications [1,2]. In the report, we will talk about new synthetic approaches to polycyclic systems based on pyrimidine and pyrazine. The main emphasis will be focused on the utilization of the nucleophilic aromatic hydrogen substitution reaction ($S_N^H$-reaction) and other cross-dehydrogenative coupling processes. Photophysical and electrochemical properties, as well as the outlook of the feasible application of the resulting systems (Figure 1), will be also discussed in this contribution.

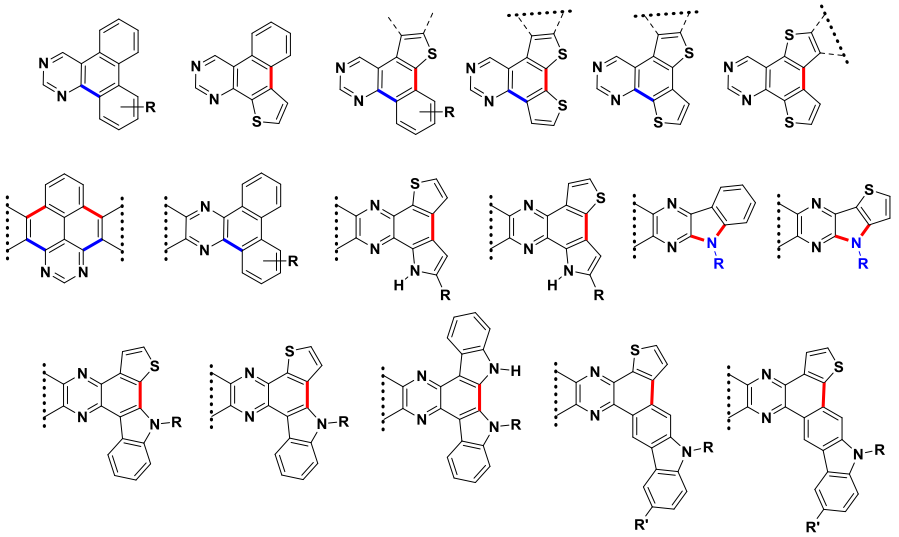

**Figure 1.** Scope of structures of 1,3-/1,4-diazine-based polycyclic systems.

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[1] E.V. Verbitskiy, G.L. Rusinov, V.N. Charushin. Diazatriphenylenes and their thiophene analogues: synthesis and applications. *ARKIVOC* **2017**, *1*, pp. 356-401.

[2] A. Borissov, Y. K. Maurya, L. Moshniaha, W.-S. Wong, M. Żyła-Karwowska, M. Stępień. Recent Advances in Heterocyclic Nanographenes and Other Polycyclic Heteroaromatic Compounds. *Chem. Rev*. **2022**, *122 (1)*, pp. 565–788.