

Phthalocyanines: one-of-a-kind porphyrinoids

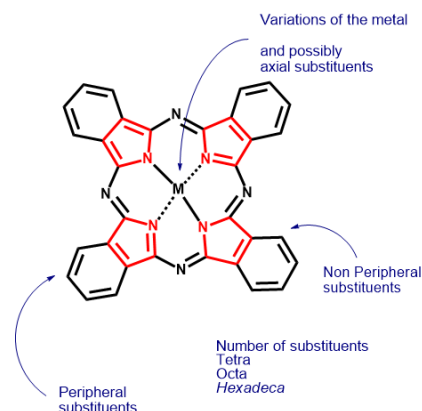
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Phthalocyanines are artificial tetrapyrrolic porphyrinoids, used in a wide range of applications, from photodynamic therapy [1] and (bio)sensors [2] to the catalysis of carbon dioxide reduction [3] or methane oxidation [4]. Amongst others, such as cardiac rhythm photomodulation [5].

There are tens of thousands phthalocyanine structures reported, as their structure allows for nearly infinite structural variations (see figure). Yet the question arises sometimes about the relevance of making some more.

After a presentation of our latest works, the future of research involving phthalocyanines will be discussed.



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[3] Min Wang, Kristian Torbensen, Danielle Salvatore, Shaoxuan Ren, Dorian Joulié, Fabienne Dumoulin, Daniela Mendoza, Benedikt Lassalle-Kaiser, Umit Işci, Curtis Berlinguette, Marc Robert, *Nature Communications*, **2019**, 10, 3602

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[5] Lukas Naimovičius, Mila Miroshnichenko, Ekin Opar, Helen Hölzel, Masa-aki Morikawa, Nobuo Kimizuka, Manvydas Dapkevičius, Justas Lekavičius, Edvinas Radiunas, Karolis Kazlauskas, Víctor Cilleros-Mañé, Fabio Riefolo, Carlo Matera, Kevser Harmandar, Masahiko Taniguchi, Fabienne Dumoulin, Jonathan S. Lindsey, Pankaj Bharmoria, Pau Gorostiza, Kasper Moth-Poulsen, *Nature Commun.*, **2025**, 16, 6377.