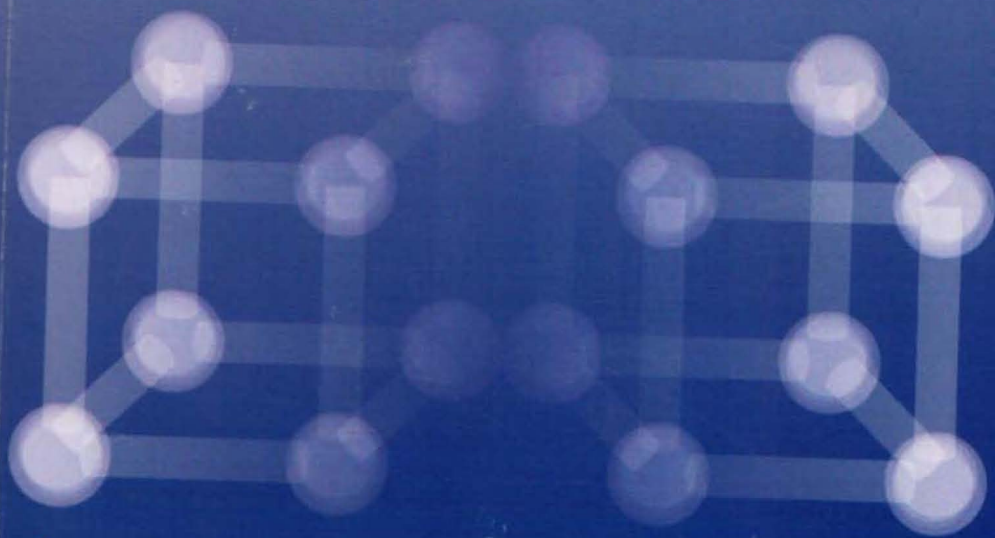


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Tetra-24-crown-8-phthalocyanines as a platform for new supramolecular ensembles

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Development of molecular machines and switches is on the foremost edge of the nowadays science. Crown-phthalocyanines attract the attention of the researchers as the very promising platform for formation of molecular machines because of their intensive absorbance in visible range and its high sensitivity to external influence as well as their ability to form different supramolecular ensembles.

In this work we present synthesis and investigation of supramolecular aggregation of 24-crown-8-substituted phthalocyanine and its metal complexes (Mg(II), Zn(II), Cu(II), Ni(II)) with viologens as the first step towards creation of new electrochemically-driven molecular machines. It was shown that addition of viologen to MgPc and ZnPc solution leads to slight bathochromic shift of the Q-band in UV-Vis spectra (Fig. 1) which can evidence the formation of J-aggregates. However, in the same conditions for H₂Pc, CuPc and NiPc significant hypsochromic shift of the Q-band occurred (Fig. 2) that can testify the formation of cofacial dimers. The difference can be explained by the presence of axial ligands in the molecules of MgPc and ZnPc which prevent the formation of cofacial dimers as it was earlier shown on similar compounds¹. Also it was shown that supramolecular aggregation strongly depends on the solvents and concentration of the solutions. The most prominent results were shown in the mixture of CH₂Cl₂ with acetone at the concentrations of 10⁻⁴.

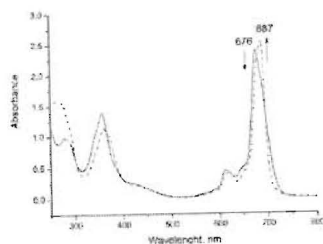


Figure 1. UV-Vis spectrum of ZnPc in CH₂Cl₂ (C=10⁻⁴) by addition of 2 eq. of viologen

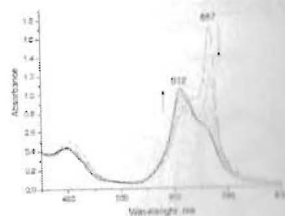


Figure 2. UV-Vis spectrum of NiPc in CH₂Cl₂ (C=10⁻⁴) by addition of 2 eq. of viologen

Acknowledgements

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References

- Safonova E.A., Martynov A.G., Nefedov S.E., Kirakosyan G.A., Gorbunova Yu.G., Tsivadze A.Yu. *Inorg. Chem.* **2016**, 55, 5, 2450-2459

Moscow, June 24-28, 2018



WEDNESDAY, 26 JUNE

12:10-12:30	OP53	S.Chorazy	OP57	J.Bendix	OP61	E.Tret'yakov	YO6	E.Lider	12:10 - 12:25
12:30-12:50	OP54	D.Roiterstein	OP58	A.Vologzhanina	OP62	D.Luneau	YO7	A.Sinelschikova	12:25 - 12:40
12:50-13:10	OP55	A.Skatova	OP59	Yu.Torubaev	OP63	T.Rudneva	YO8	V.Kharitonov	12:40 - 12:55
13:10-13:30	OP56	V.Utochnikova	OP60	A.Burg	OP64	P.González-Herrero	YO9	T.Pietrzak	12:55 - 13:10
							YO10	B.Akhmadeev	13:10 - 13:25
17:40 - 17:50	Dia-M LCC	A.Shumeev	FP6 - FP22	17:40 - 19:00	IL 9	A.Tarasov	IL10	D.Valyaev	17:40 - 18:05
17:50 - 18:05	YO11	E.Yudina			YO14	R.Böser	YO16	D.Campillo	18:05 - 18:20
18:05 - 18:20	YO12	M.Jørgensen			YO15	A.Zvyagina	YO17	E.Kuchuk	18:20 - 18:35
18:20 - 18:35	YO13	P.Burlak			YO16	Ju.Shakirova	YO18	A.Passera	18:35 - 18:50
18:35 - 19:00	FP1 - FP5				FP23 - FP24		FP25 - FP26		18:50 - 19:00
19:00-20:00									

POSTER SESSION

THURSDAY, 27 JUNE

12:10-12:30	OP65	E.Bouwman	OP69	R.Gobetto	OP73	J.Cirera	YO19	E.Mitoudi Vagourdi	12:10 - 12:25
12:30-12:50	OP66	M.Rumyantseva	OP70	E.Osipova	OP74	Yu.Nelyubina	YO20	L.Cailler	12:25 - 12:40
12:50-13:10	OP67	S.Fedorenko	OP71	S.Shapovalov	OP75	M.Khusniyarov	YO21	A.Markov	12:40 - 12:55
13:10-13:30	OP68	A.G.Martynov	OP72	W.Seidel	OP76	J.Jimenez Gallego	YO22	E.Arkipova	12:55 - 13:10
							YO23	I.Lapshin	13:10 - 13:25
15:30 - 15:55	IL11	Y. Deligiannakis	IL13	D.Meyerstein	IL15	A.Majouga	IL17	M.Sokolov	
15:55 - 16:20	IL12	M.Louloudi	IL14	V.Kozhevnikov	IL16	A.Mustafina	IL18	A.Shevelkov	
16:20 - 16:40	OP77	D.Long	OP80	E.Kravchenko	OP83	A.Bilyachenko	YO24	A.Plajer	16:20 - 16:35
16:40 - 17:00	OP78	A.Medvedev	OP81	A.Pavlov	OP84	A.Nazarov	YO25	V.Krivoborodov	16:35 - 16:50
17:00 - 17:20	OP79	I.Meshkov	OP82	S.Vyboishchikov	OP85	O.Fedorova	YO26	M.Domańska	16:50 - 17:05
							YO27	R.Collins	17:05 - 17:20