

## Study of thermoresponsive porphyrins and their supramolecular complexes

*Tuesday, 24 May 2016 09:30 (15 minutes)*

We studied the water-soluble artificial compound meso-tetrakis{3,4,5-tris[2-(2-(2-methoxyethoxy)ethoxy)phenyl]porphyrin prepared at NIMS, Japan, using the high-resolution NMR spectroscopy experimental method. We observed its LCST-type phase separation and applied the Flory-Huggins theory of polymer solutions in order to find its phase diagram (binodal and spinodal curves of the phase separation) and we also obtained molar enthalpies, entropies and critical temperatures of its phase separation; from the Flory-Huggins theory we discovered that its molecules form dimers in aqueous solutions. We also studied its host-guest interactions with the S-camphorsulfonic acid; we learned that the porphyrin binds cations and the porphyrin dimers break down when dissolved cations are available for complexation. We observed no phase separation in chloroform. We obtained no proof of the existence of molecular stacks larger than dimers.

### Sekce

Biofyzika a fyzika molekulárních systémů

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**Session Classification:** Biofyzika a fyzika molekulárních systémů