

Aromaticity Switching in Porphyrinoids and Heteroporphyrinoids

Lechosław Latos-Grażyński

Department of Chemistry, University of Wrocław, Wrocław, POLAND, llg@wchuwr.pl

One of the ways to study the phenomenon of aromaticity is through the synthesis of new molecules, which are often specifically designed to test various aspects of the theory or to pose new problems. Aromaticity of porphyrinoids can be influenced by a variety of structural modifications, such as peripheral substitution, covalent linking of multiple macrocycles, ring expansion or contraction, and introduction of non pyrrolic subunits. The altered porphyrinoids can exhibit an unprecedented controlled switching between several Möbius and Hückel π -delocalization modes. Our studies have been focused on the physical manifestations of aromaticity, with a special emphasis on NMR spectroscopy. The aim of the presentation is to provide a description of carbaporphyrinoid aromaticity and its connection with linking mode of arene moieties, tautomeric equilibria, intramolecular rearrangements, reversible peripheral modifications, oxidation state or coordination.