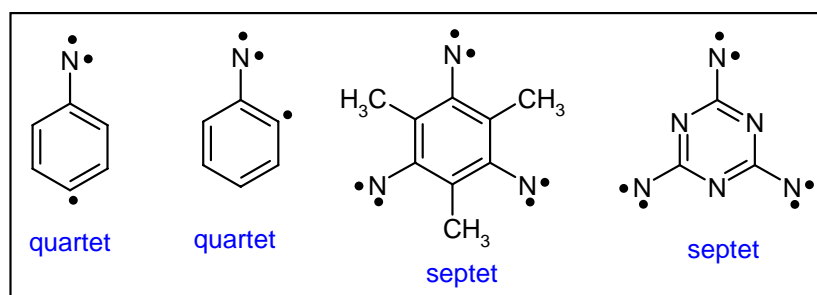
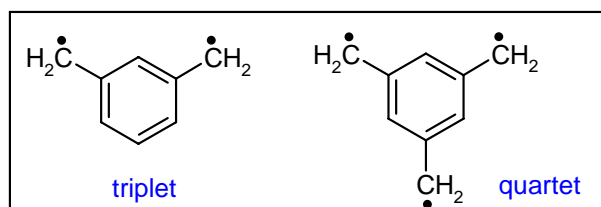
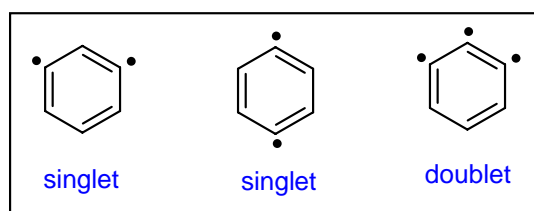


Wolfram Sander

Lehrstuhl für Organische Chemie II der Ruhr-Universität, D-44780 Bochum, Germany

Email: wolfram.sander@rub.de

Polyradicals are interesting open-shell molecules with two or more non-bonding electrons. Depending on the interactions between these electrons a high-spin state and several low-spin states are accessible. In most cases a *meta*-phenylene coupling unit between unpaired  $\pi$ -electrons - such as in *meta*-xylylene or 1,3,5-trimethylenemethane - results in high-spin ground states.<sup>1,2</sup> However, if unpaired  $\sigma$ -electrons are involved *ortho*- and *para*-coupling can result in high spin states whereas *meta*-coupling produces low-spin states.<sup>3</sup> The influence of the topology of the interaction between unpaired electrons and the resulting spin state will be discussed in the lecture.



- (1) Neuhaus, P.; Grote, D.; Sander, W. *J. Am. Chem. Soc.* **2008**, *130*, 2993-3000.
- (2) Chapyshev, S. V.; Grote, D.; Finke, C.; Sander, W. *J. Org. Chem.* **2008**, *73*, 7045-7051.
- (3) Sander, W.; Grote, D.; Kossmann, S.; Neese, F. *J. Am. Chem. Soc.* **2008**, *130*, 4396-4403.