

From Organic Chemistry to Nanoscience: Studies on Aromatic Compounds.

Bernardo Herradón

Instituto de Química Orgánica, Consejo Superior de Investigaciones Científicas (IQOG-CSIC), c/ Juan de la Cierva 3, 28006 Madrid, Spain

b.herradon@csic.es

Since their interesting theoretical and practical implications, aromatic compounds play a central role in Organic Chemistry, being a frequent structural motif in many chemicals with a variety of appealing chemical, physical, biological and technological properties.

Our group has been involved in the research on many different aspects of aromatic compounds that include the following issues:

- Synthetic applications of biocatalysis.
- Non-covalent interactions of aromatic compounds.
- Towards the quantification of aromaticity.
- Computational toxicology of aromatic compounds.
- Peptide-arene hybrids: synthesis, structure and properties.
- Inhibitors of the protease calpain.
- Gold nanoparticles 'decorated' with peptide-biphenyl hybrids.
- Aromatic ionic liquids as electrolytes for batteries.
- Research on graphene.
- Setting an spin-off.

In the meeting, we will highlight some results on these different topics.

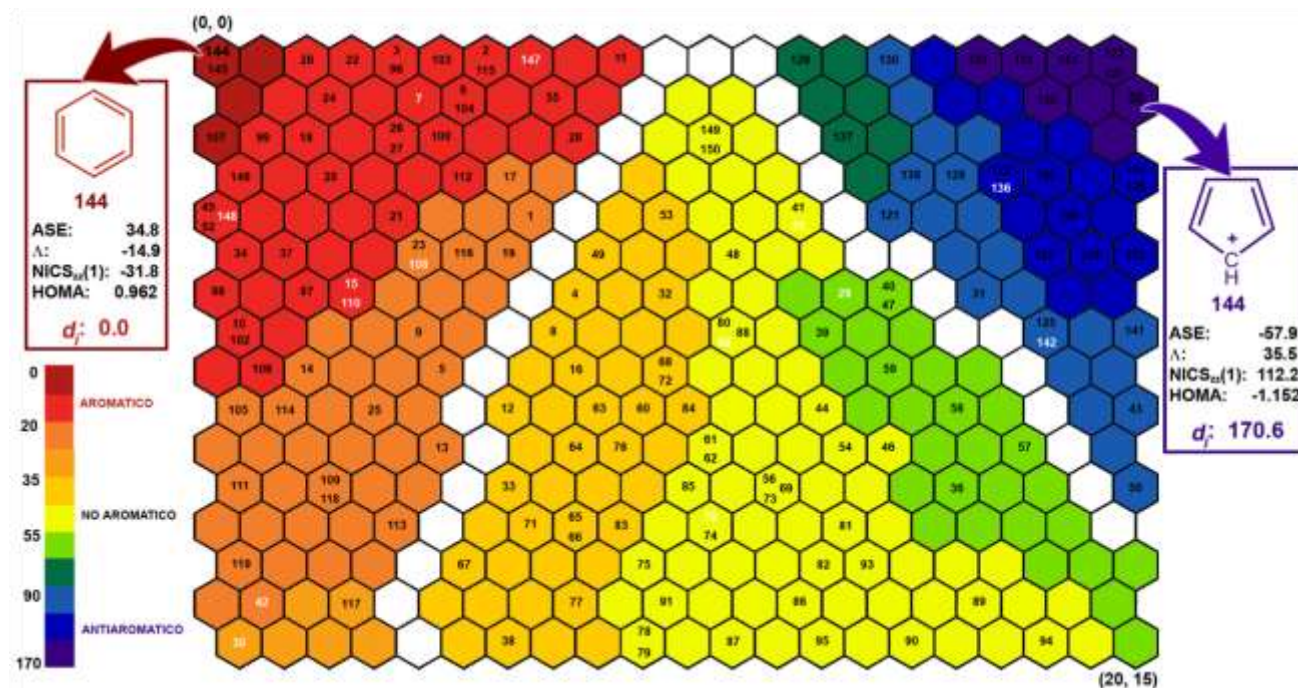


Figure 1: Neural network that classifies organic compounds based on their aromatic, non-aromatic, and antiaromatic characters. The Euclidean distance between neurons (relative to the one activated by benzene, the most aromatic compound) can be used as a quantitative scale of aromaticity.