# Calix[4]dihydroquinone Units as Building Blocks in Supramolecular Chemistry

Consiglia Tedesco, Ivano Immediata, Rossella Ferro, Luisa Gregoli, Carmine Gaeta, Placido Neri, *Dipartimento di Chimica, Università di Salerno, Italy*. E-mail: ctedesco@unisa.it

In the last years our group has been exploiting calixarene molecules bearing quinone and hydroquinone moieties to form supramolecular networks based on hydrogen bonds and charge transfer interactions. We have prepared and characterized both proximal and distal calix[4]dihydroquinone derivatives, whose molecular self-assembly properties will be discussed in connection with the molecular structure of the building blocks.

The proximal *p-tert*-butylcalix[4]arene dihydroquinone derivative forms cubic crystals by an interesting interplay of H-bond and van der Waals-like interactions and is characterized by the simultaneous existence of water channels and unoccupied lattice voids of ca. 1400 Å$^3$. Interestingly the supramolecular framework is preserved after removal of channel water molecules under vacuum at 50°C [1]. *p-H*-1,3-calix[4]arene dihydroquinone presents two polymorph structures: one is formed by alternate layers of crystallographically independent calixarene molecules, the second one is constituted by calixarene self-inclusion trimers connected each other by two water molecules. *p-H*-1,2-calix[4]arene dihydroquinone crystallizes in a bilayer type structure.

[1] Tedesco C., Immediata I., Gregoli L., Vitagliano L., Immirzi A., Neri P., *submitted*.

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