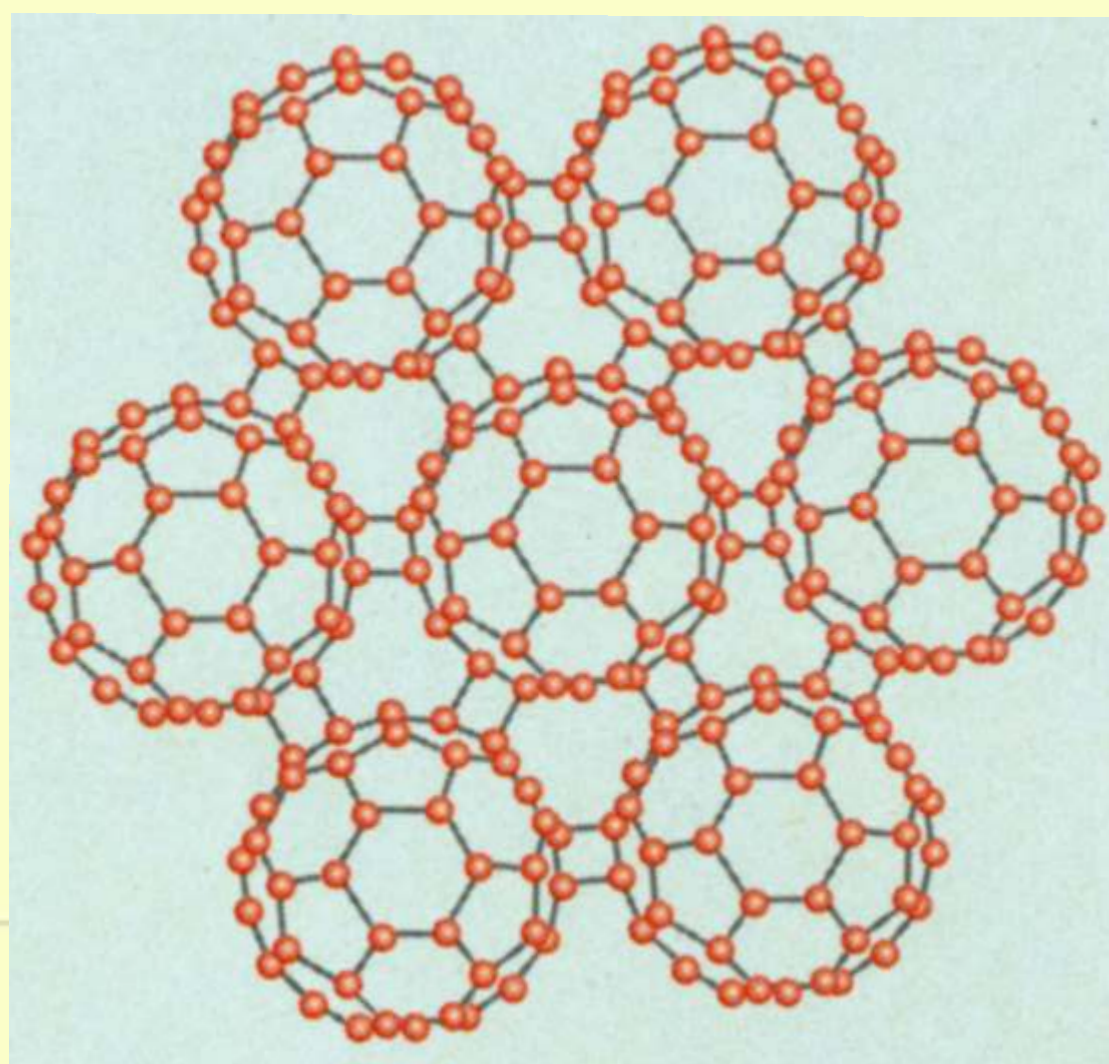


Carboni magnètic i superconductor

An international research team reports the serendipitous discovery of ferromagnetic behaviour at and above room temperature in a form of polymeric C₆₀ [Tatiana I. Makarova of Ioffe Physico-Technical Institute, St. Petersburg, Russia; *Nature* 413, 716 (2001)].

Scientists are interested in developing metal-free magnets because such magnets "would be electrical insulators (reducing energy losses in some applications) and should be cheaper and lighter than their metallic counterparts.

Jan Hendrik Schön and coworkers at Lucent Technologies' Bell Laboratories, Murray Hill, N.J., have increased the superconducting transition temperature of a single crystal of C₆₀ from 52 K to 117 K by intercalating CHCl₃ or CHBr₃ molecules in the crystal lattice (*Science*, published August 30, 2001). This is the highest transition temperature reported for a noncuprate material.

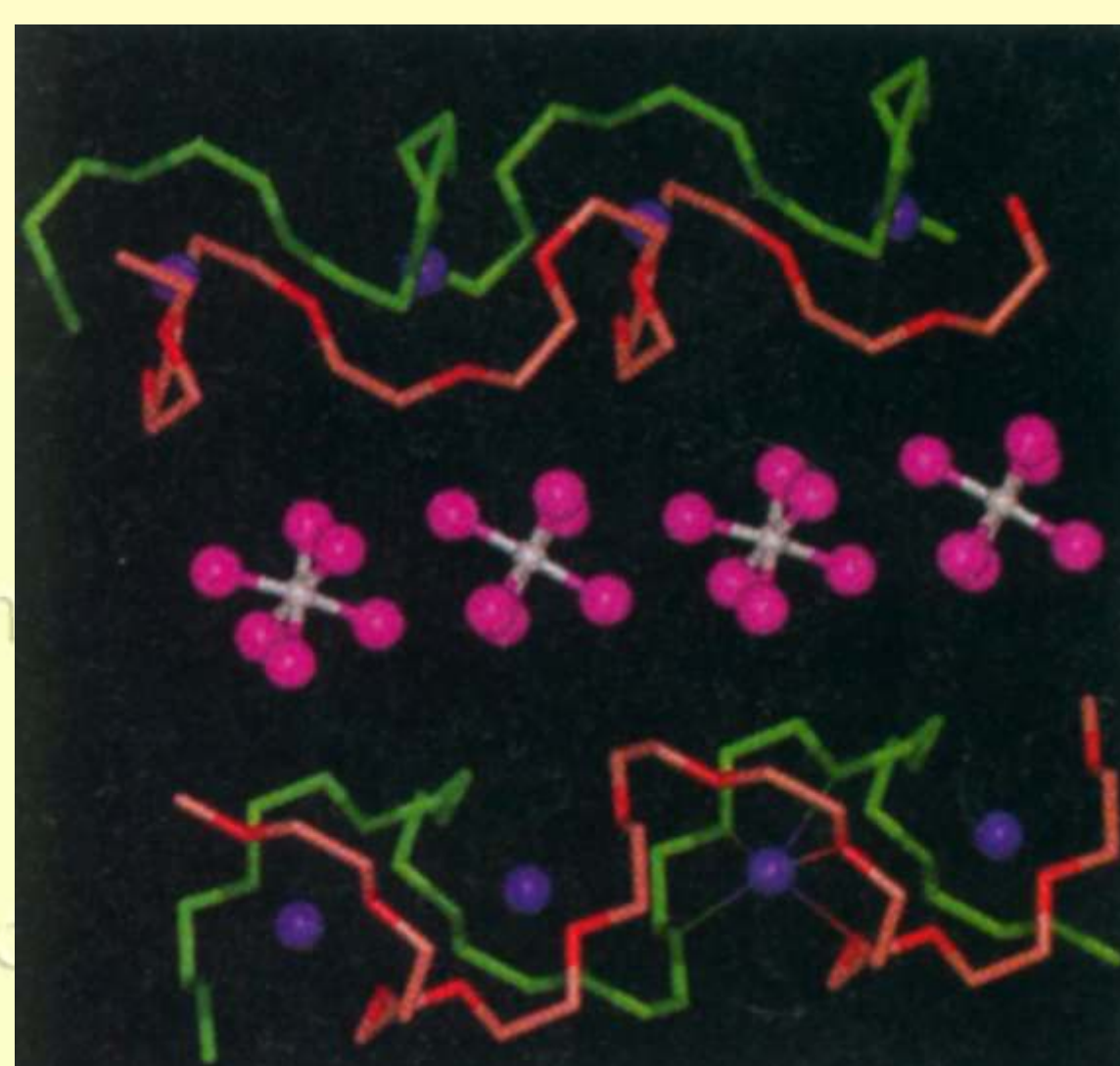


Font: *Chem. Eng. News*, 3 desembre 2001, 37

Bateries de liti cada cop més eficients

Chemistry professor Peter G. Bruce and colleagues at the University of St. Andrews prepared crystalline and amorphous forms of complexes of poly(ethylene oxide) and lithium salts such as LiAsF₆ and LiSbF₆. Ionic conductivities of the crystalline compounds are significantly higher than those of the corresponding amorphous compounds over a range of temperatures, they report [*Nature*, 412, 520 (2001)].

Although the results are not of immediate application, they may open the route for the design of new, highly conductive, solvent-free polymer electrolytes, this being one of the key goals for the progress of lithium polymer battery technology.



Font: *Chem. Eng. News*, 23 abril 2001, 59

Nou al·lòtrop de l'oxigen: O₄

Fulvio Cacace and colleagues at the University of Rome 'La Sapienza' have produced evidence of O₄. The existence of such a molecule has been predicted since the 1920s, but extensive searches for it have yielded only tentative previous sightings.

The interest in new oxygen allotropes is not purely theoretical. Liquefied ordinary oxygen (O₂) is used as a rocket fuel (called LOX), as it reacts energetically with fuels such as hydrogen and hydrocarbons. As the O₄ allotrope packs a lot of oxygen into a small space, it might be even more energy-dense.

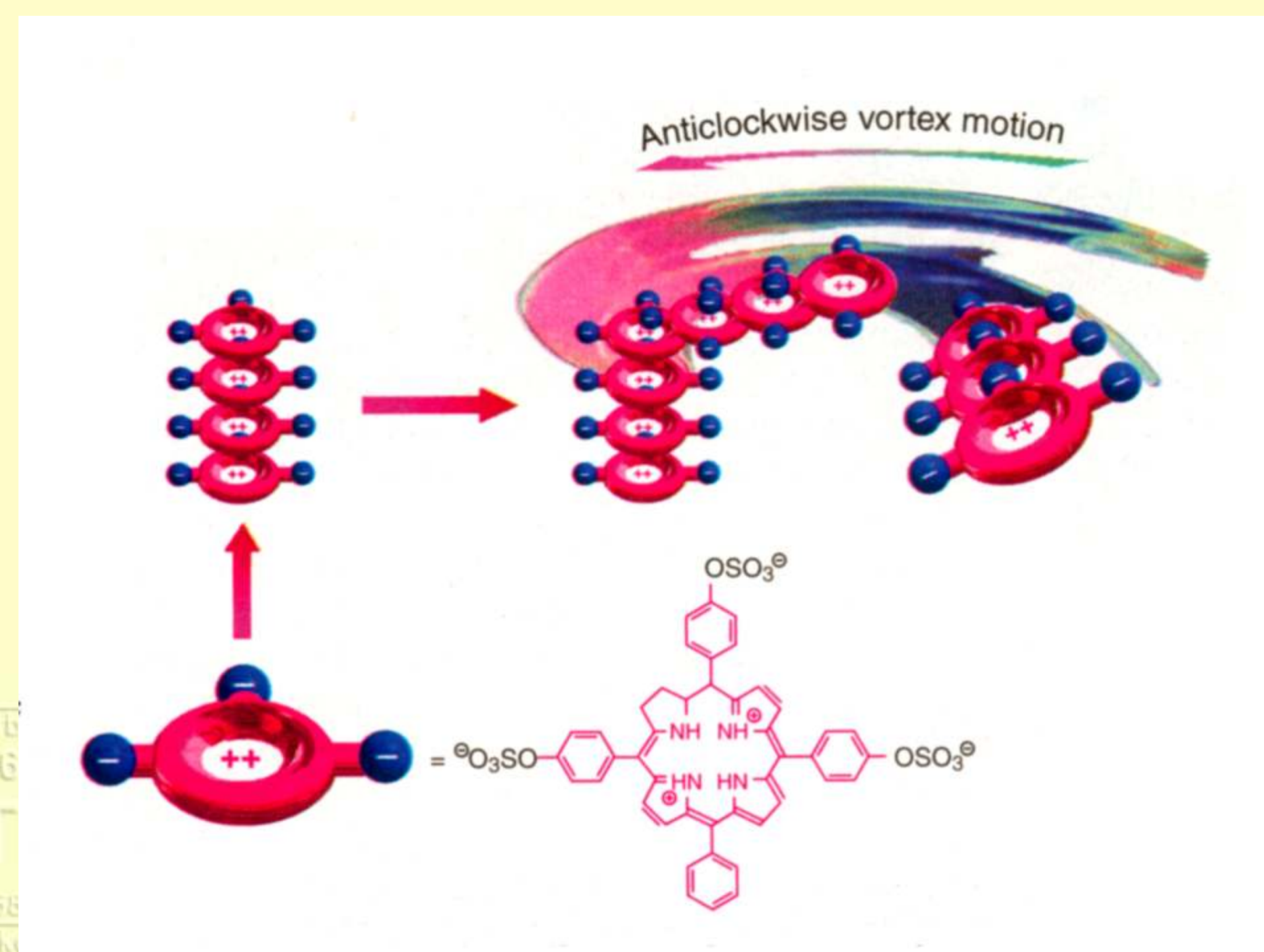
What O₄ looks like is still a mystery. Earlier theoretical calculations suggested two possibilities: a rhombus-shaped molecule with an atom at each corner, or a triangle of atoms with the fourth in the centre. But neither of these options fits the researchers' results very well. Instead, they think that O₄ is probably composed of two dumbbell-like O₂ molecules that are loosely bound together.

Font: *Chem. Eng. News*, 25 juny 2001, 9

Quiralitat induïda per agitació

Researchers at the University of Barcelona report success in selecting the handedness of certain molecular assemblies simply by stirring them in one direction or another [Josep M. Ribó, Joaquim Crusats, Francesc Sagués, Josep Claret, Raimon Rubires, *Science* 292, 2063 (2001)].

Louis Pasteur, pioneer in understanding molecular asymmetry, tried unsuccessfully 100 years ago to induce a preference for left- or right-handedness in molecules. Ribó and his team managed to succeed where others had failed by applying a vortex motion to guide the assembly of achiral, disk-like molecules called porphyrins into helix-shaped aggregates. When stirred one way, the molecules would form mostly clockwise helices; when stirred the opposite way, the formed counterclockwise helices.

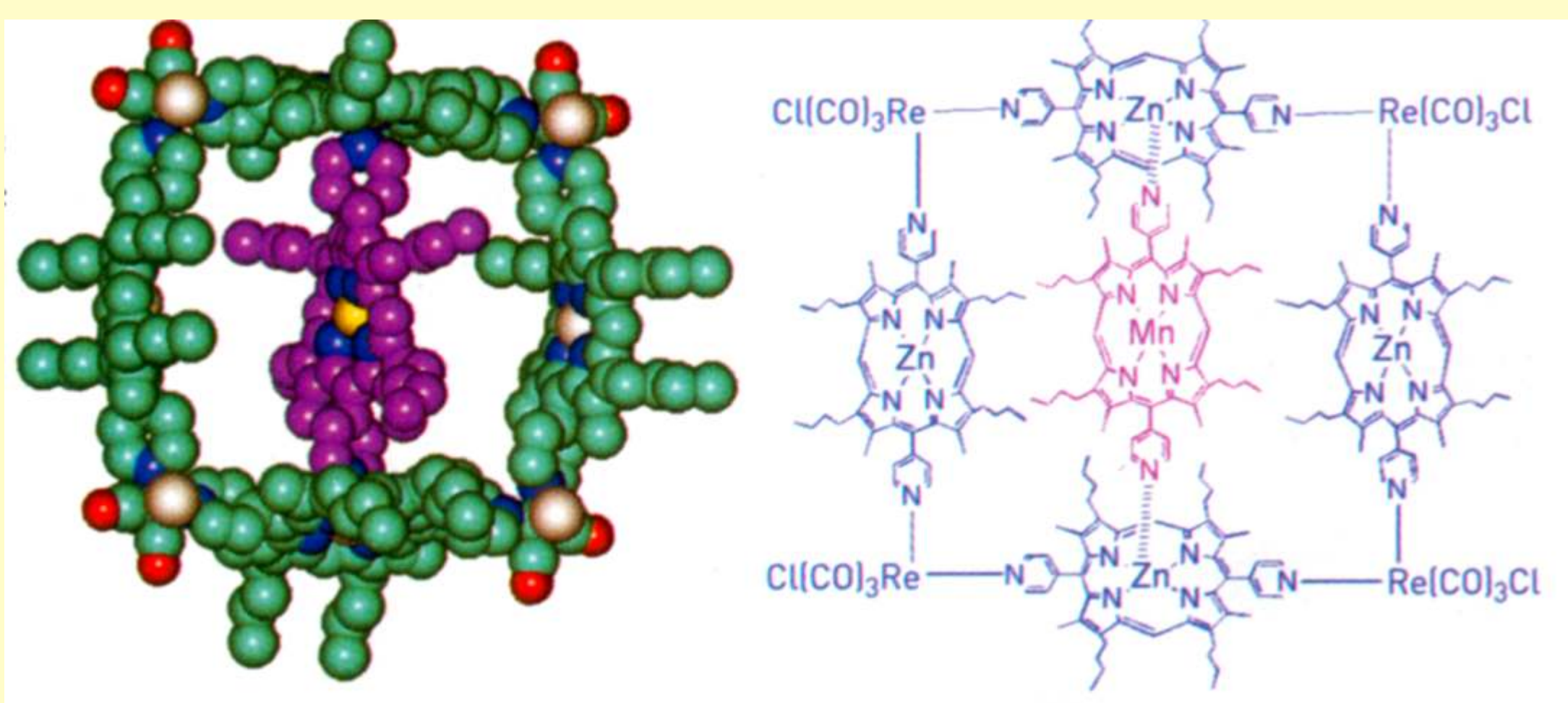


Font: *Chem. Eng. News*, 2 juliol 2001, 8

La Química Supramolecular imita la Natura

A manganese porphyrin epoxidation catalyst, when placed in the cavity formed by the directed assembly of zinc porphyrin molecules, acts as an artificial enzyme [Son Binh T. Nguyen and Joseph T. Hutt, Northwestern University; *Angew. Chem. Int. Ed.*, 40, 4239 (2001)].

One of the most impressive aspects of Nguyen and Hupp's work is that they were able to demonstrate that the use of a nanostructured system affords something special in terms of properties and/or performance compared to conventional materials.



Font: *Chem. Eng. News*, 15 octubre 2001, 5

Breus

- No s'ha confirmat l'existència dels elements ¹¹⁸Uuo i ¹¹⁶Uuh.
- Amb el salvapantalles del teu ordinador pots col·laborar amb més d'un milió de persones en la cerca de medicaments contra el càncer. Més informació a <http://>
- S'ha inaugurat el nou edifici de Química del ETH de Zurich. El seu pressupost ha estat de 350 mil·lions d'euros
- S'ha compilat una base de dades de "reaccions que no funcionen":