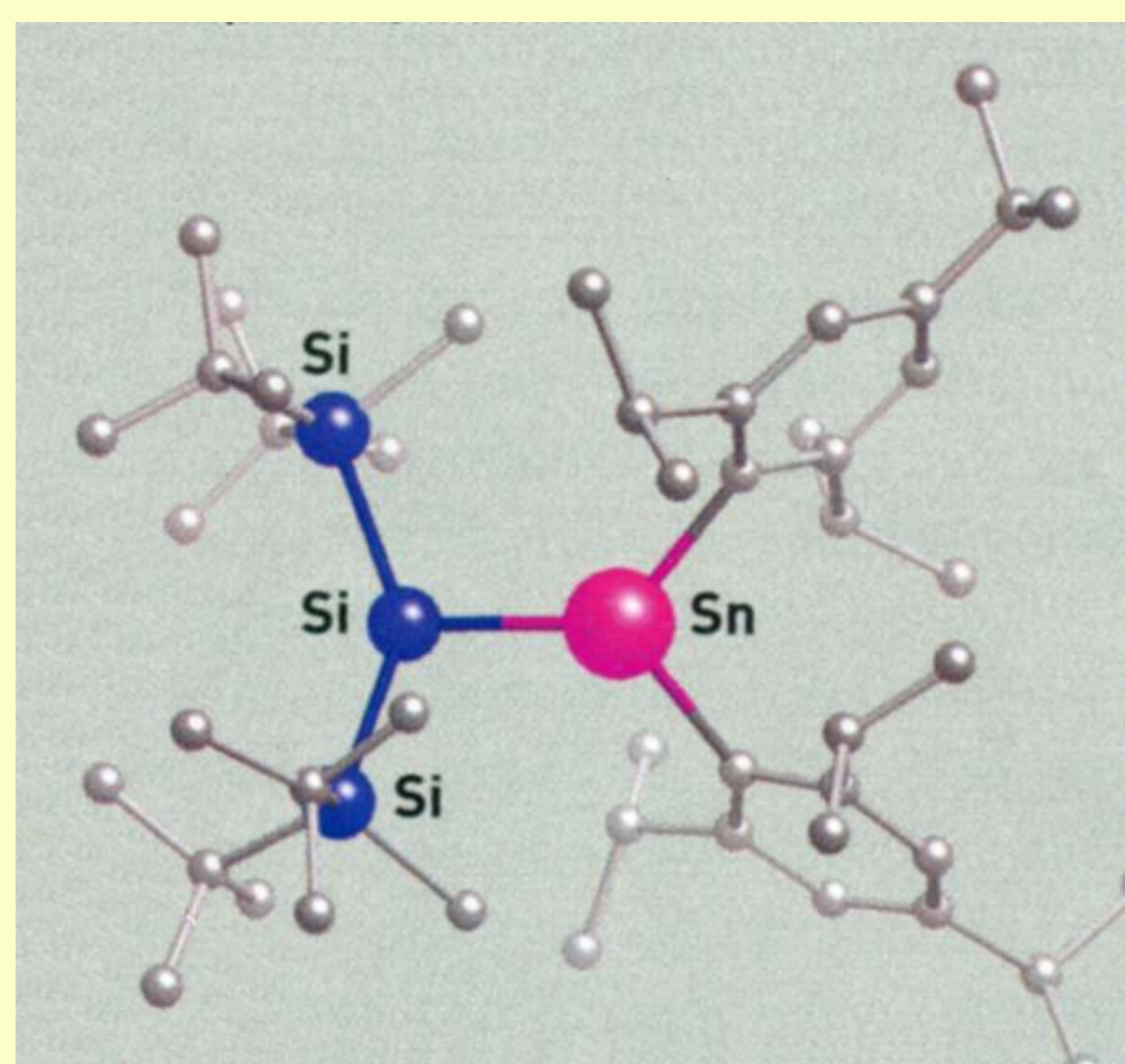


Olefina inorgànica: Primer compost Si=Sn

Akira Sekiguchi and coworkers report the isolation of the first silastannene, a compound with a Si=Sn bond [*J. Am. Chem. Soc.*, **124**, 14822 (2002)].

The silastannene (shown, hydrogens omitted) was prepared by coupling bis[di-*tert*-butyl (methyl)silyl]dilithiosilane with dichlorobis(2,4,6-triisopropylphenyl)stannane. The crystal structure reveals a Si=Sn bond length of 2.42 Å, much longer than C=C bonds and intermediate between Si=Si and Sn=Sn bond lengths.

The Si=Sn bond is highly reactive, forming addition products with phenol or benzenethiol at room temperature.

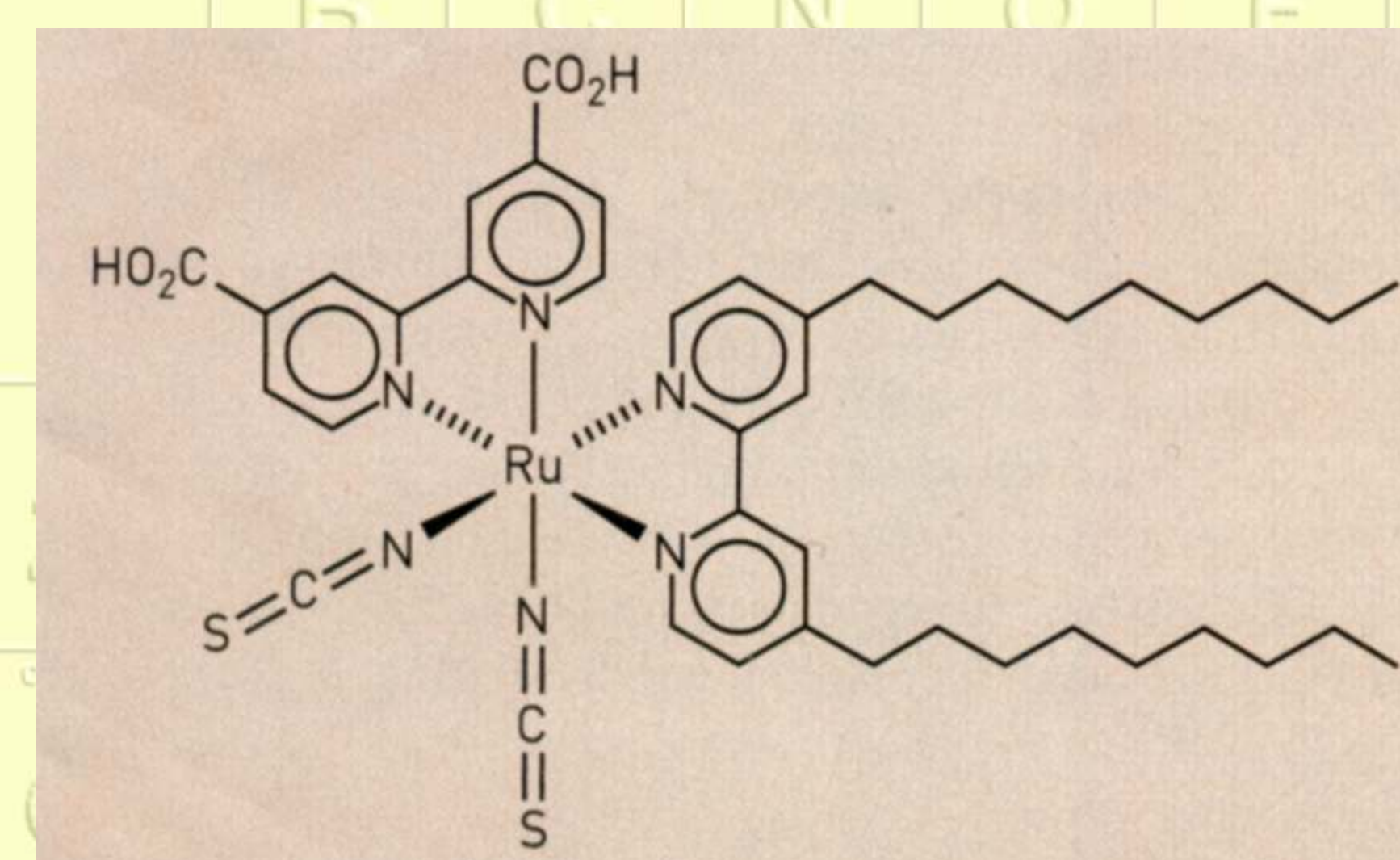


Noves aplicacions dels líquids iònics: I- Electròlits en bateries solars

A gel consisting of a room-temperature ionic liquid and a stable polymer serves as an electrolyte in a high-efficiency dye-sensitized solar cell [S.M. Zakeeruddin, M. Gratzel and coworkers; *Chem. Commun.*, **2002**, 2972].

The new gel is mechanically stable and flexible. It offers the benefits of ionic liquids, such as negligible vapor pressure, nonflammability, and high ionic conductivity.

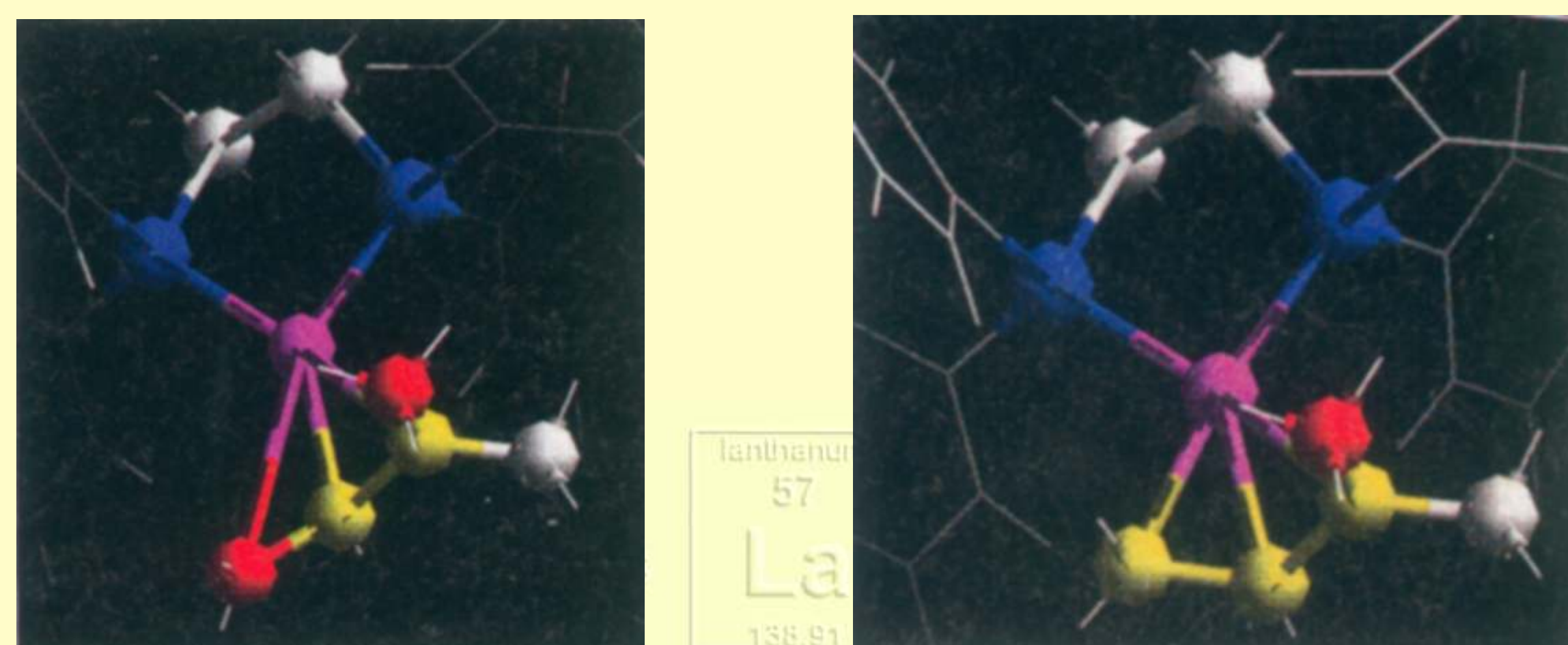
The cell, which has a light-to-energy conversion efficiency of 5.3%, consists of a solid thin film of the electrolyte sandwiched between a counterelectrode and a nanocrystalline TiO₂ electrode coated with a light-harvesting dye. The electrolyte contains an iodide/triiodide redox couple, which allows electrical charge to be transported between the electrodes. The polymer is poly(vinylidene fluoride-*co*-hexafluoropropylene). The ionic liquid, 1-methyl-3-propylimidazolium iodide, is used as a source of iodide ions.



Raigs X i mecanismes en catàlisi homogènia

A new data analysis procedure for extended X-ray absorption fine structure (EXAFS) spectroscopy makes the method more amenable to liquid-phase compounds. The technique has been used to uncover structure-selectivity relations in homogeneous palladium catalysts [M. Tromp, D.C. Koningsberg and coworkers; *J. Am. Chem. Soc.*, **124**, 14814 (2002)].

Discovering relationships between a catalyst's structure and its catalytic performance requires analyzing the material in its active phase. But that can be tough to do because of experimental limitations. To gain insight into the basis for product selectivity, the team studied palladium compounds used to catalyze allylic substitution reactions. Unlike the crystalline structure of the dppe complex, in solution the unsubstituted allyl carbon bends away from Pd, leaving that carbon atom electronically activated and accessible to nucleophilic attack.



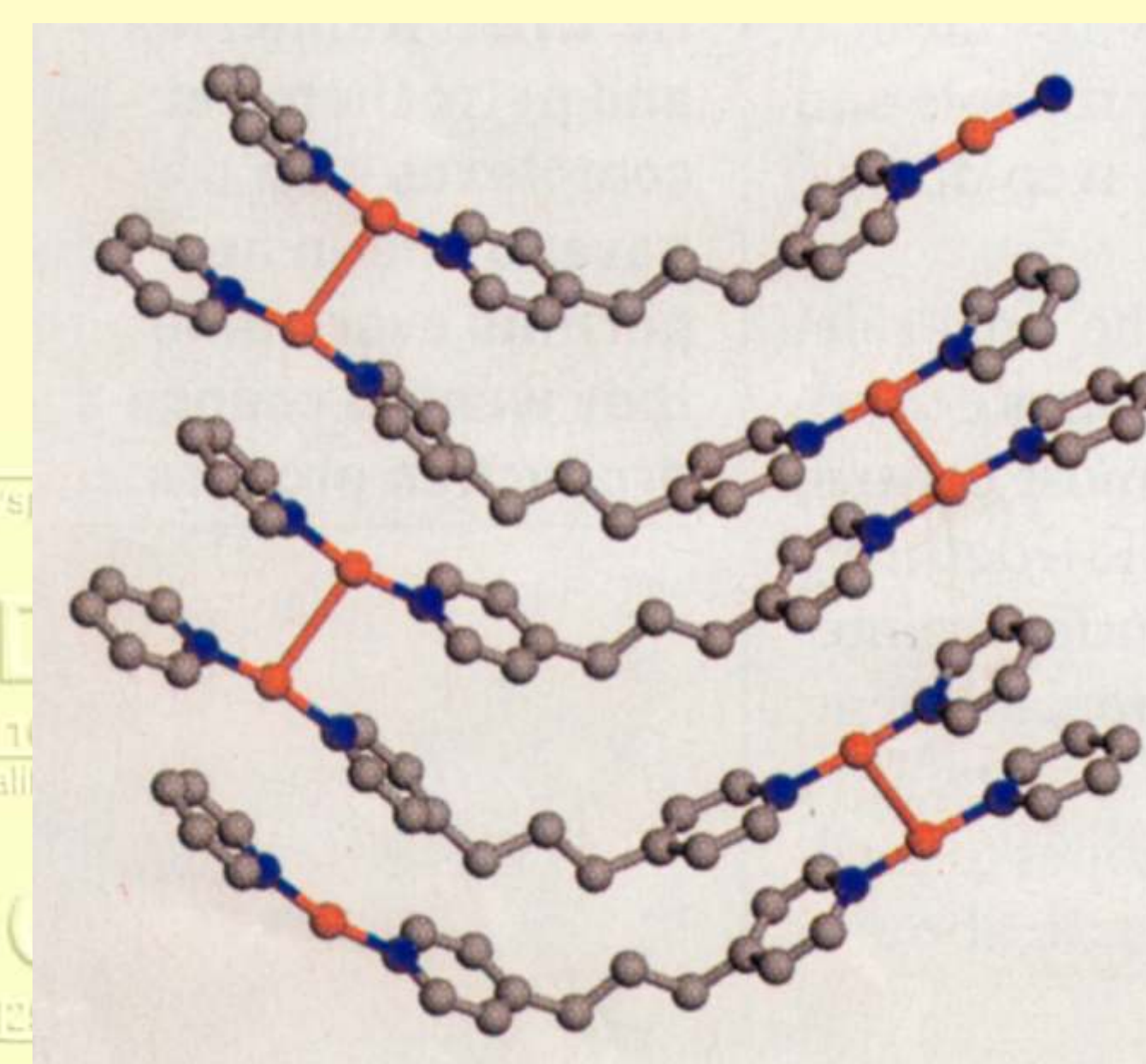
The structure of a ligand-Pd-allyl complex in solution (left) differs from the crystalline form (right) and offers clues about the catalyst's selectivity (Pd=pink, P=blue, C=red, white, yellow)

II- Solvents en Química de la Coordinació

The discovery that room-temperature ionic liquids can be used as solvents to prepare extended networks of coordination complexes could lead to another potentially useful application of these materials.

Using a thermally stable and poorly coordinating ionic liquid as a solvent, a crystalline copper-containing complex with a two-dimensional wavelike structure that resembles a brick wall has been synthesized [J. Li, S. Wherland and coworkers; *Chem. Commun.*, **2002**, 2872].

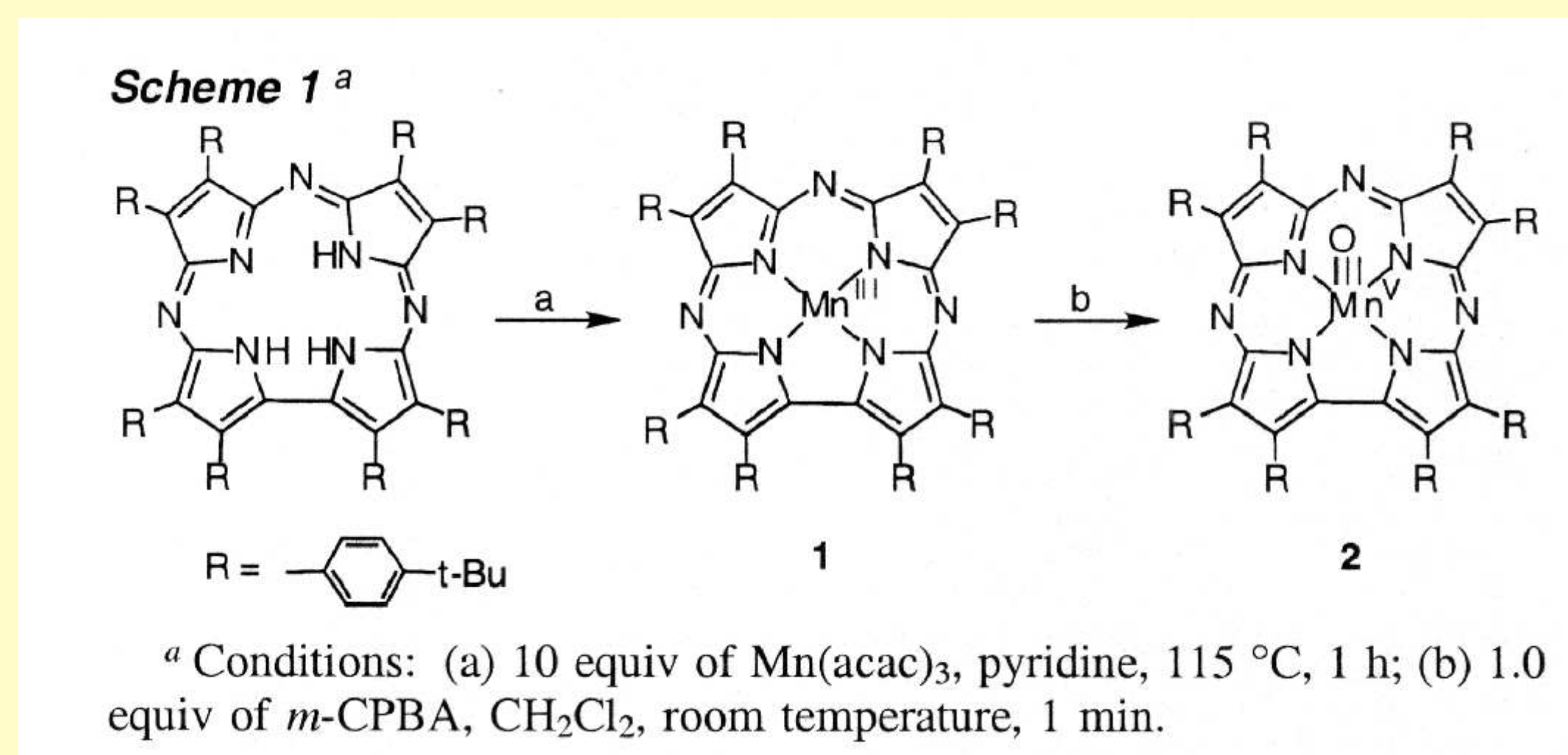
Ionic liquids have a number of advantages over organic solvents, including high thermal stability, low volatility, and the ability to be tailored to meet specific synthetic needs. In addition, the special nature of the ionic liquid leads to different structures compared with those obtained by other routes.



Mn(V) estabilitzat per lligands porfirínics

Using a novel porphyrinoid ligand, chemists at Johns Hopkins University have synthesized an oxomanganese(V) porphyrinoid complex stable enough to be isolated at room temperature [D.P. Goldberg and coworkers; *J. Am. Chem. Soc.*, **124**, 15170 (2002)]. Similar high-valent metal-oxo species are thought to be important intermediates in heme-protein-catalyzed reactions and organic synthetic transformations, but so far it's been tough to pin down their existence. The spectroscopic signatures provided by the team's remarkably stable Mn(V)-oxo corrolazine complex will aid identification of similar species in biological systems.

The team attributes the complex's exceptional stability to its unique corrolazine ligand, a hybrid of a tetraazaporphyrin and a corrole ring.



Breus

- Fa cinquanta anys que Watson i Crick van proposar l'estructura en doble hèlix de l'ADN [*Nature*, **171**, 737 (1953)].
- La Química Quàntica permet estudiar les propietats i reactivitat dels elements superpesants; així s'han comparat les propietats del OsO₄ i el HsO₄. [*J. Chem. Phys.* **117**, 10441 (2002)].
- De les 50 indústries químiques més importants del món 23 són europees: 5 alemanyes, 5 britàniques, 4 franceses, 3 suïsses, 2 holandeses, 1 noruega, 1 belga, 1 italiana i 1 danesa.
- La revista *Chemistry & Engineering News* ha publicat el "Resum de l'Any" de la química el 2002 [16 de desembre de 2002, p. 35]. Molts dels resultats seleccionats havien estat ja publicats a *Notícies Inorgàniques*.

L'element número **8**, **oxigen**, va ser descobert per Joseph Priestley i Carl W. Scheele, independentment, l'any 1774. El seu nom prové del grec *oxy genes*, que significa 'formador d'àcids'.