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Cover

See Eluvathingal D. Jemmis, Elambalassery G. Jayasree and Pattiyil Parameswaran, page 157.

Hypercarbons in polyhedral structures: Examples of hypercoordinate carbon atoms among carboranes, multiple-decker sandwiches, condensed carboranes and endohedral molecules.

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Inside cover

See Giancarlo Cravotto and Pedro Cintas, page 180. Microwave oven equipped with a probe system (quartz horn) for simultaneous irradiation with power ultrasound and microwaves. Image reproduced by permission of Giancarlo Cravotto from *Chem. Soc. Rev.*, 2006, 35, 180.

CHEMICAL SCIENCE

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Drawing together the research highlights and news from all RSC publications, Chemical Science provides a 'snapshot' of the latest developments across the chemical sciences showcasing newsworthy articles, as well as the most significant scientific advances.

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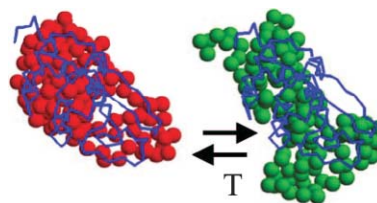
TUTORIAL REVIEWS

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X-ray scattering of non-crystalline biological systems using synchrotron radiation

Michel H. J. Koch

Synchrotron radiation X-ray scattering and imaging help unraveling structural hierarchies in biological systems and synthetic nanosystems



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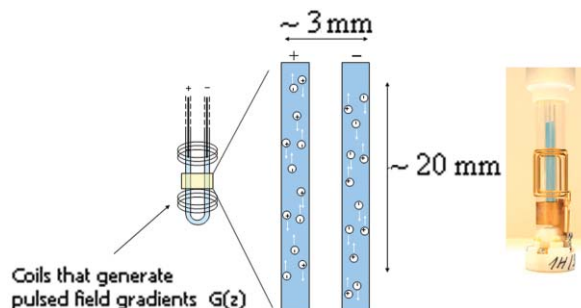
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Electrophoretic NMR studies of polymer and surfactant systems

P. C. Griffiths, A. Paul and N. Hirst

U-tube sample environment for electrophoretic NMR measurements showing the position of the U-tube within the rf and gradient coils of an NMR diffusion probe and the direction of flow of the ions due to the applied electric field.

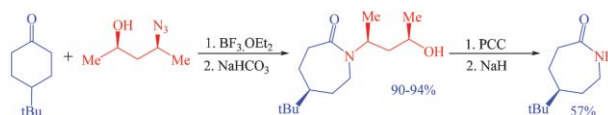


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Azide rearrangements in electron-deficient systems

S. Lang and J. A. Murphy*

Asymmetric variants are among the key developments in expanding the scope of Schmidt reactions.

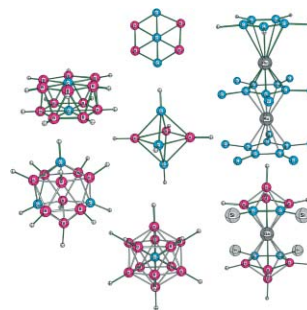


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Hypercarbons in polyhedral structures

Eluvathingal D. Jemmis,* Elambalassery G. Jayasree and Pattiyil Parameswaran

This review describes various molecular structures containing hypercoordinate carbon atoms, such as pyramidal and polyhedral carboranes, metallocarboranes, multidecker sandwich compounds, encapsulated polyhedral compounds and planar molecules.

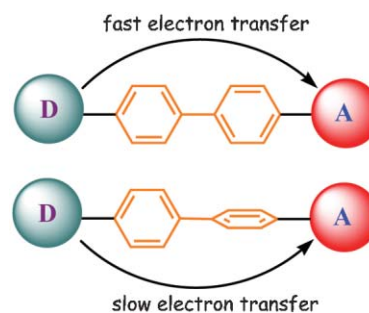


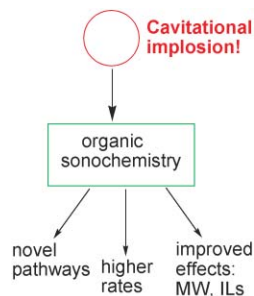
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Charge on the move: how electron-transfer dynamics depend on molecular conformation

Andrew C. Benniston* and Anthony Harriman

Controlling the rate of electron transfer by changing the geometry of the bridge provides unparalleled opportunities to build novel molecular electronic systems.





Power ultrasound in organic synthesis: moving cavitation chemistry from academia to innovative and large-scale applications

Giancarlo Cravotto* and Pedro Cintas*

Ultrasound is a powerful means to improve organic synthesis, sometimes leading to unexpected results. Recent advances in cavitation chemistry are reviewed.

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