

Chem Soc Rev

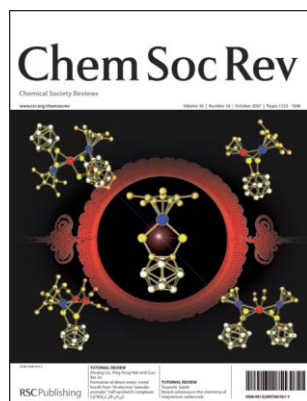
Chemical Society Reviews

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IN THIS ISSUE

ISSN 0306-0012 CODEN CSRVBR 36(10) 1533–1696 (2007)



Cover

See Shuang Liu, Ying-Feng Han and Guo-Xin Jin, page 1543. An illustration of a Chinese Knot, a traditional craft in China. It is usually made of silk thread and stands for happiness, felicity and all the other good wishes. It is indispensable in Chinese celebrations and national festivals and in this summary of colorful organo-metallic chemistry as well. Image reproduced by permission of Shuang Liu, Ying-Feng Han and Guo-Xin Jin from *Chem. Soc. Rev.*, 2007, **36**, 1543.



Inside cover

See Wojciech Grochala, page 1632. Atypical bonding to 'noble' gases is reviewed and accompanied with predictions of new molecules and compounds. Image reproduced by permission of Wojciech Grochala from *Chem. Soc. Rev.*, 2007, **36**, 1632.

CHEMICAL SCIENCE

C73

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.

Chemical Science

October 2007/Volume 4/Issue 10

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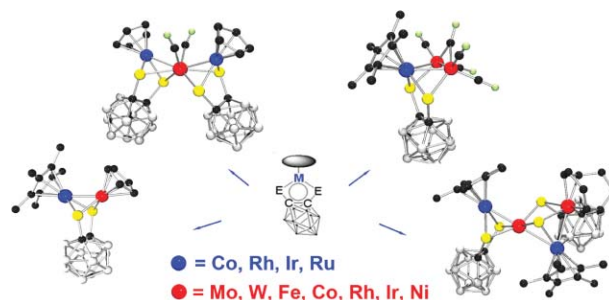
TUTORIAL REVIEW

1543

Formation of direct metal–metal bonds from 16-electron “pseudo-aromatic” half-sandwich complexes $\text{Cp}^m\text{M}[\text{E}_2\text{C}_2(\text{B}_{10}\text{H}_{10})]$

Shuang Liu, Ying-Feng Han and Guo-Xin Jin*

This *tutorial review* focuses on the rational design for multi-metallic complexes *via* redox reactions from pseudo-aromatic half-sandwich Ir, Rh, Co and Ru precursors with 1,2-dicarba-closo-dodecaborane-1,2-dichalcogenolato ligands.



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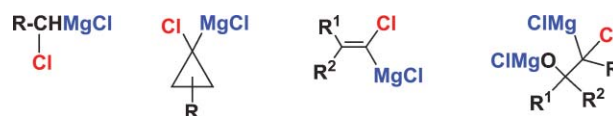
TUTORIAL REVIEWS

1561

Recent advances in the chemistry of magnesium carbenoids

Tsuyoshi Satoh

Lowering the reactivity of traditional carbenoids opens up the new world of the chemistry of carbenoids.



1573

Synthesis of functionalized biodegradable polyesters

Charlotte K. Williams

Functionalized aliphatic polyesters are attracting attention as sustainable alternatives to petrochemicals and for applications in medicine. Their syntheses are described and illustrated with reference to interesting recent materials.

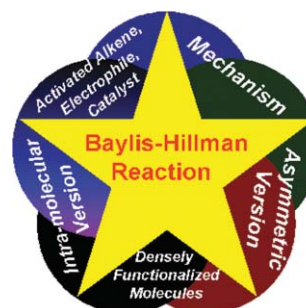


1581

The Baylis–Hillman reaction: a novel source of attraction, opportunities, and challenges in synthetic chemistry

Deevi Basavaiah,* Kalapala Venkateswara Rao and Raju Jannapu Reddy

The growth of the Baylis–Hillman reaction and future challenges with respect to its asymmetric and intramolecular versions and mechanistic aspects are presented.

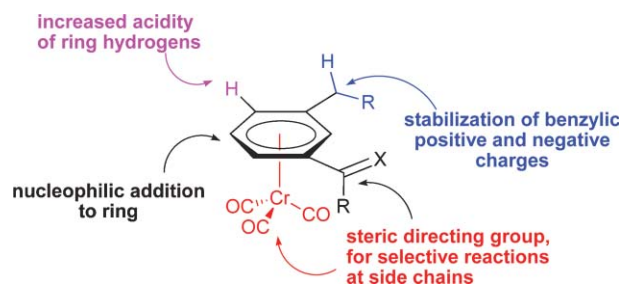


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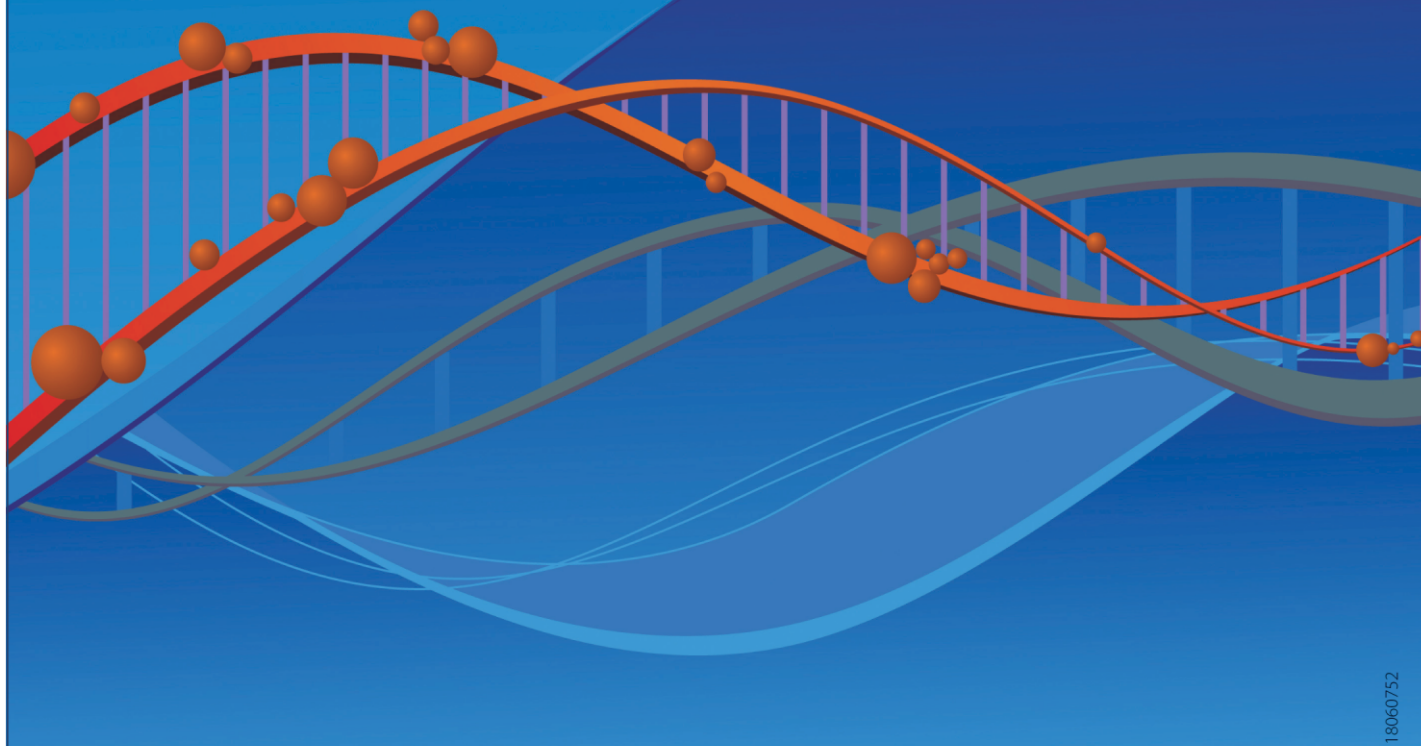
Chromium arene complexes in organic synthesis

Marta Rosillo, Gema Domínguez and Javier Pérez-Castells*

Easy to prepare, stable and highly efficient in asymmetric catalysis, chromium arene complexes are valuable as synthetic intermediates and asymmetric ligands.



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TUTORIAL REVIEWS

1605

The surface of cultural heritage artefacts: physicochemical investigations for their knowledge and their conservation

Marc Aucouturier and Evelyne Darque-Ceretti

This *tutorial review* shows how surface characterisation leads to very rich information on a cultural heritage artefact's history, fabrication techniques and conservation state.

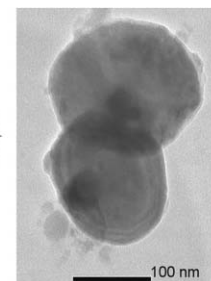
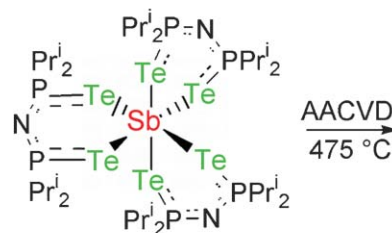


1622

The single molecular precursor approach to metal telluride thin films: imino-bis(diisopropylphosphine tellurides) as examples

Jamie S. Ritch, Tristram Chivers,* Mohammad Afzaal and Paul O'Brien*

Pure thin films of metal tellurides, such as CdTe, Sb₂Te₃ and In₂Te₃, can be generated from complexes of the [TePrⁱ₂PNPPPrⁱ₂Te][−] ligand by using the technique of aerosol-assisted chemical vapour deposition.



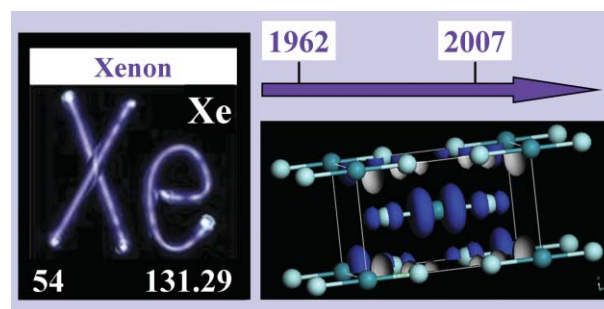
CRITICAL REVIEWS

1632

Atypical compounds of gases, which have been called 'noble'

Wojciech Grochala

This *critical review* provides a survey of the recent experimental and theoretical advances in an unusual 'noble' gas–element bonding, and the prospect for novel bonds, compounds, and emerging high-pressure chemistry of xenon.

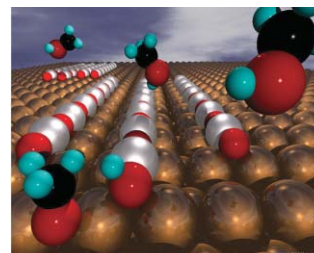


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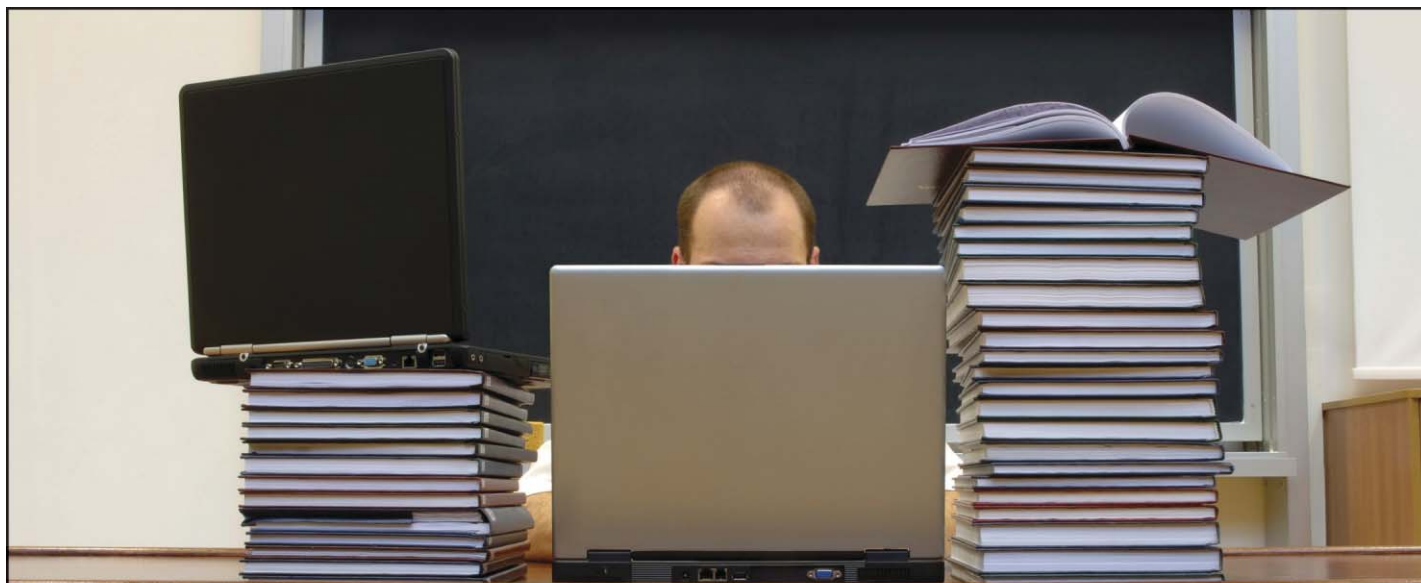
Catalysis resolved using scanning tunnelling microscopy

Michael Bowker

The amazing capability of scanning tunnelling microscopy (STM) to 'see' atoms and molecules, gives us the possibility to observe reactions at the atomic scale, and to resolve problems in catalysis.



The reaction between gas phase methanol and oxygen islands on Cu(110). Courtesy of Philip Davies of Cardiff University.



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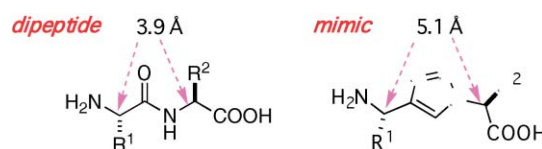
CRITICAL REVIEW

1674

Peptidomimetics via copper-catalyzed azide–alkyne cycloadditions

Yu L. Angell and Kevin Burgess

Copper-catalyzed alkyne–azide cycloadditions are spawning a new generation of peptidomimetics, peptide-conjugates, and pharmaceutical leads.



ADDITION AND CORRECTION

1690

The organic chemistry of silver acetylides

Ulla Halbes-Letinois, Jean-Marc Weibel and Patrick Pale

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Articles:

Investigation of the selenium species distribution in a human B-cell lymphoma line by HPLC- and GC-ICP-MS in combination with HPLC-ESIMS/MS and GC-TOFMS after incubation with methylseleninic acid

Heidi Goenaga Infante, Simon P. Joel, Emma Warburton, Christopher Hopley, Ruth Hearn and Simone Jülicher, *J. Anal. At. Spectrom.*, 2007, **22**, 888

DOI: 10.1039/b708620b

Laser ablation-ICP-MS assay development for detecting Cd- and Zn-binding proteins in Cd-exposed *Spinacia oleracea* L.

Aleksandra Polatajko, Marisa Azzolini, Ingo Feldmann, Thomas Stuezel and Norbert Jakubowski, *J. Anal. At. Spectrom.*, 2007, **22**, 878

DOI: 10.1039/b703245e

Analysis of phytochelatins in nopal (*Opuntia ficus*): a metallomics approach in the soil-plant system

Julio Alberto Landero Figueroa, Scott Afton, Kazimierz Wrobel, Katarzyna Wrobel and Joseph A. Caruso, *J. Anal. At. Spectrom.*, 2007, **22**, 897

DOI: 10.1039/b703912c

Mass spectrometric analysis of ubiquitin-platinum interactions of leading anticancer drugs: MALDI versus ESI

Christian G. Hartinger, Wee Han Ang, Angela Casini, Luigi Messori, Bernhard K. Keppler and Paul J. Dyson, *J. Anal. At. Spectrom.*, 2007, **22**, 960

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