

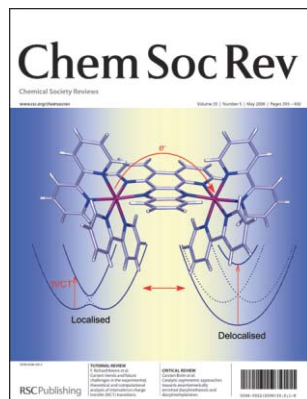
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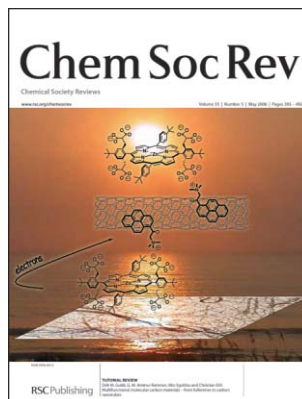
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ISSN 0306-0012 CODEN CSRVBR 35(5) 393–492 (2006)



Cover

See Deanna M. D'Alessandro and F. Richard Keene, page 424. Can existing theoretical models probe intervalence charge transfer (IVCT) characteristics of mixed-valence species in the "localised-to-delocalised" (Class II–III) regime? Image reproduced by permission of Deanna M. D'Alessandro and F. Richard Keene from *Chem. Soc. Rev.*, 2006, 35, 424.



Inside cover

See Dirk M. Guldi *et al.*, page 471. The figure on the cover portrays a leading example of a non-covalent approach (*i.e.*, nanohybrids) towards the integration of SWNT as electron acceptor—together with a zinc tetraarylporphyrin as light harvesting electron donor—into electron-donor-acceptor ensembles. Image reproduced by permission of Dirk M. Guldi, G. M. Aminur Rahman, Vito Sgobba and Christian Ehli from *Chem. Soc. Rev.*, 2006, 35, 471.

CHEMICAL SCIENCE

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Chemical Science

May 2006/Volume 3/Issue 5

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TUTORIAL REVIEWS

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Sulfur and iron in shipwrecks cause conservation concerns

Yvonne Fors and Magnus Sandström

Historical shipwrecks are found to be infested with sulfur and iron compounds—a new challenge for the conservation of marine-archaeological wood.



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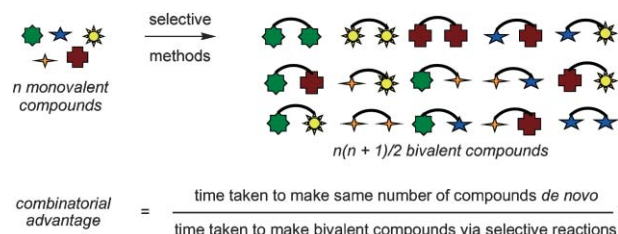
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Heterovalent selectivity and the combinatorial advantage

Samuel J. Reyes and Kevin Burgess*

Selective methods to form heterobivalent molecules lead to combinatorial advantages in syntheses; this review discusses how.

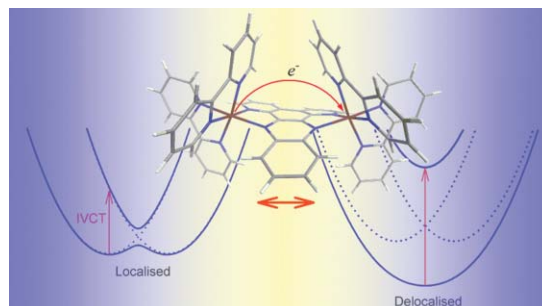


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Current trends and future challenges in the experimental, theoretical and computational analysis of intervalence charge transfer (IVCT) transitions

Deanna M. D'Alessandro and F. Richard Keene*

The review highlights experimental, theoretical and computational methods which have developed over the past 35 years for the analysis of intervalence charge transfer (IVCT) transitions as a probe of the factors which govern electronic delocalisation and the activation barrier to intramolecular electron transfer.



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Photochemical reactions in the tropospheric aqueous phase and on particulate matter

Davide Vione,* Valter Maurino, Claudio Minero, Ezio Pelizzetti, Mark A. J. Harrison, Romeo-Iulian Olariu and Cecilia Arsene

Important tropospheric processes are induced by sunlight in water droplets and on particles. (Photo: courtesy of Observation-based research, Met Office, Exeter, UK).



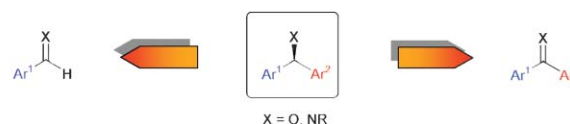
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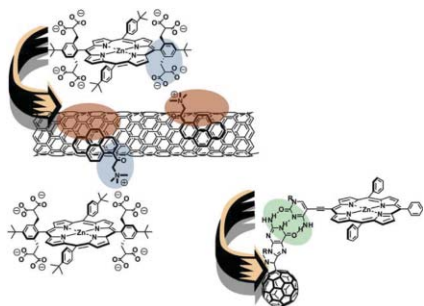
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Catalytic asymmetric approaches towards enantiomerically enriched diarylmethanols and diarylmethylamines

Frank Schmidt, René T. Stemmler, Jens Rudolph and Carsten Bolm*

Catalytic strategies towards enantioenriched diarylmethanols and diarylmethylamines are presented, which include aryl transfer reactions to aldehydes and arylimines, respectively, and enantioselective reductions of diarylketones.

Asymmetric aryl additions to aldehydes or aldimines**Asymmetric reductions of ketones or imines**



Multifunctional molecular carbon materials—from fullerenes to carbon nanotubes

Dirk M. Guldi, G. M. Aminur Rahman, Vito Sgobba and Christian Ehli

This Review covers the timely topic of carbon nanostructures—fullerenes and carbon nanotubes—in combination with metalloporphyrins as integrative components for electron-donor—acceptor ensembles.

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