

AIMS AND SCOPE

While total synthesis reached extraordinary levels of sophistication in the last century, the development of practical and efficient synthetic methodologies is still in its infancy. The goal of achieving chemical reactions that are economical, safe, environmentally benign, resource- and energy-saving will demand the highest level of scientific creativity, insight and understanding in a combined effort by academic and industrial chemists.

Advanced Synthesis & Catalysis is designed to stimulate and advance that process by focusing on the development and application of efficient synthetic methodologies and strategies in organic, bioorganic, pharmaceutical, natural product, macromolecular and materials chemistry. The targets of synthetic studies can range from natural products and pharmaceuticals to macromolecules and organic materials. While catalytic methods based on metal complexes or enzymes play an ever increasing role in achieving synthetic efficiency, all areas of interest to the practical synthetic chemist fall within the purview of *Advanced Synthesis & Catalysis*, including synthesis design, reaction techniques, separation science and process development.

Contributions from industrial and governmental laboratories are highly encouraged. It is the goal of the journal to help initiate a new era of chemical science, based on the efforts of synthetic chemists and on interdisciplinary collaboration, so that chemistry will make an even greater contribution to the quality of life than it does now.

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COMMENTARY

Divide et Impera – Multiphase, Green Solvent and Immobilization Strategies for Molecular Catalysis

Adv. Synth. Catal. **2006**, 348, 1337–1340

R. Tom Baker,* Shū Kobayashi,* Walter Leitner*

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REVIEWS

Asymmetric Catalytic Synthesis of Organic Compounds using Metal Complexes in Supercritical Fluids

Adv. Synth. Catal. **2006**, 348, 1341–1351

David J. Cole-Hamilton*

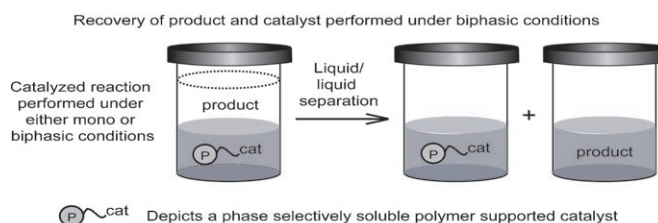


1341

Liquid/Liquid Biphasic Recovery/Reuse of Soluble Polymer-Supported Catalysts

Adv. Synth. Catal. **2006**, 348, 1352–1366

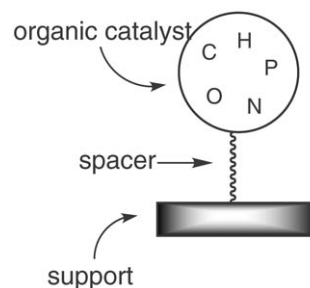
David E. Bergbreiter,* Shayna D. Sung



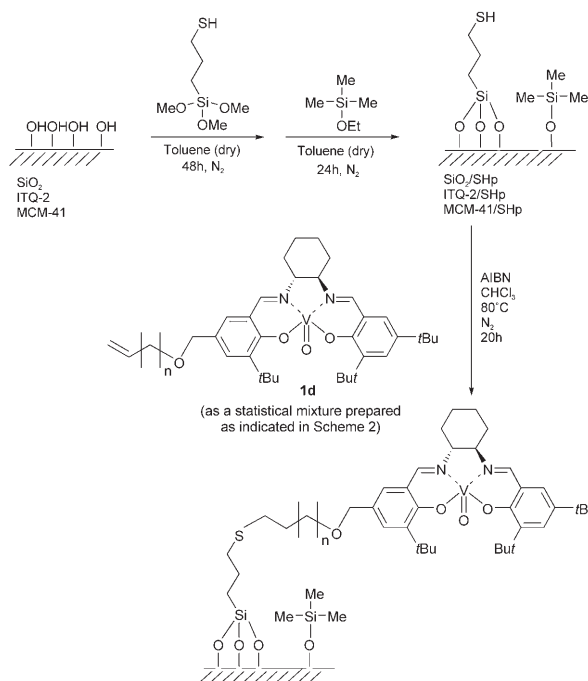
1352

1367 Immobilization of Organic Catalysts: When, Why, and How*Adv. Synth. Catal.* **2006**, 348, 1367–1390

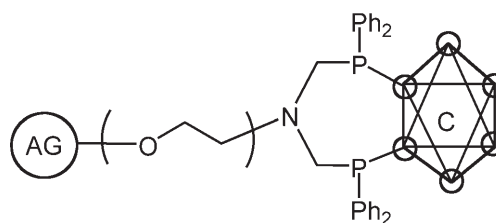
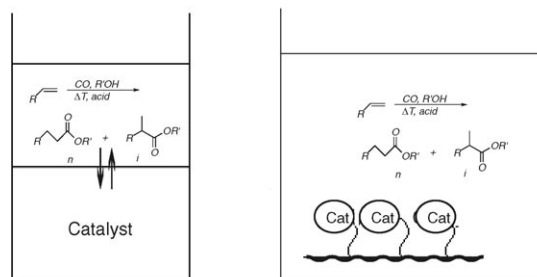
Franco Cozzi*

**1391** Silica-Bound Homogenous Catalysts as Recoverable and Reusable Catalysts in Organic Synthesis*Adv. Synth. Catal.* **2006**, 348, 1391–1412

Avelino Corma,* Hermenegildo Garcia*

**1413** Aspects of Immobilisation of Catalysts on Polymeric Supports*Adv. Synth. Catal.* **2006**, 348, 1413–1446

Bart M. L. Dooos, Ivo F. J. Vankelecom, Pierre A. Jacobs*

**1447** Multiphase Systems for the Recycling of Alkoxycarbonylation Catalysts*Adv. Synth. Catal.* **2006**, 348, 1447–1458Jeroen J. M. de Pater, Berth-Jan Deelman,*
Cornelis J. Elsevier, Gerard van Koten

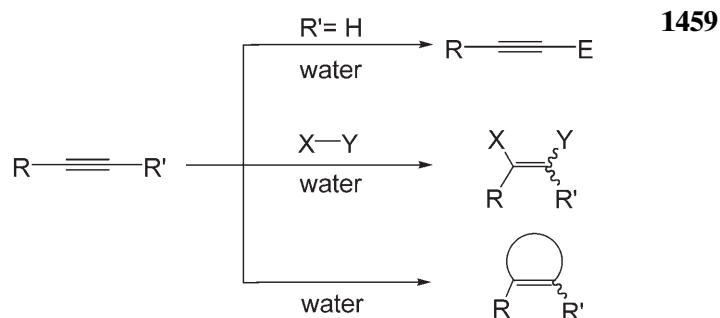
Homogeneous, two phases

"Homogeneous" at the heterogeneous phase

Catalyzed Reactions of Alkynes in Water

Adv. Synth. Catal. **2006**, 348, 1459–1484

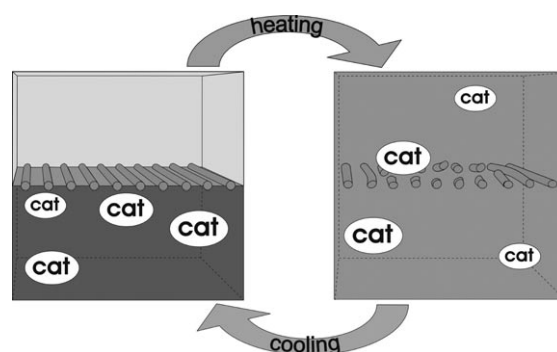
Liang Chen, Chao-Jun Li*



Thermoregulated Liquid/Liquid Catalyst Separation and Recycling

Adv. Synth. Catal. **2006**, 348, 1485–1495

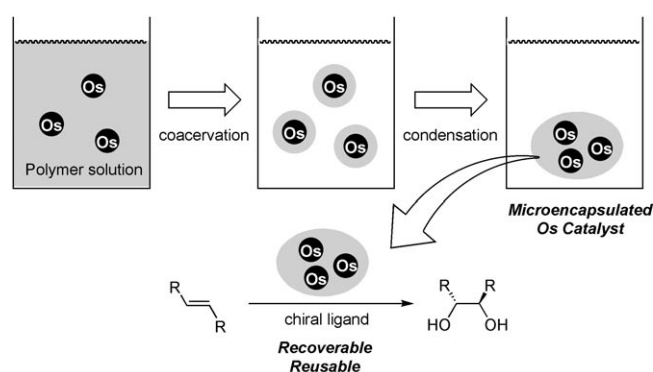
Arno Behr,* Guido Henze, Reinhard Schomäcker



Immobilization of Osmium Catalysts for Asymmetric Dihydroxylation of Olefins

Adv. Synth. Catal. **2006**, 348, 1496–1504

Shū Kobayashi,* Masaharu Sugiura

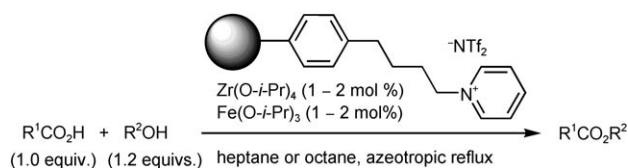


COMMUNICATIONS

Iron(III)–Zirconium(IV) Combined Salt Immobilized on N-(Polystyrylbutyl)pyridinium Triflylimide as a Reusable Catalyst for a Dehydrative Esterification Reaction

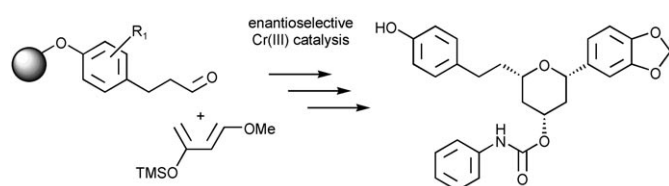
Adv. Synth. Catal. **2006**, 348, 1505–1510

Yuka Nakamura, Toshikatsu Maki, Xiaowei Wang, Kazuaki Ishihara,* Hisashi Yamamoto*



Enantioselective Catalysis on the Solid Phase: Synthesis of Natural Product-Derived Tetrahydropyrans Employing the Enantioselective Oxa-Diels–Alder Reaction

Adv. Synth. Catal. **2006**, 348, 1511–1515

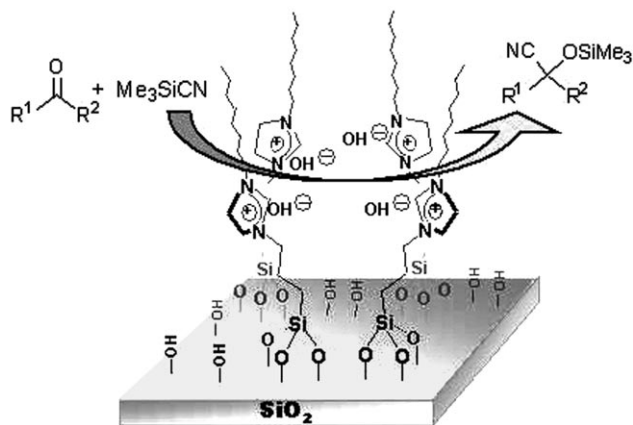


Miguel A. Sanz, Tobias Voigt, Herbert Waldmann*

- 1516** An Immobilized Organocatalyst for Cyanosilylation and Epoxidation

Adv. Synth. Catal. **2006**, 348, 1516–1520

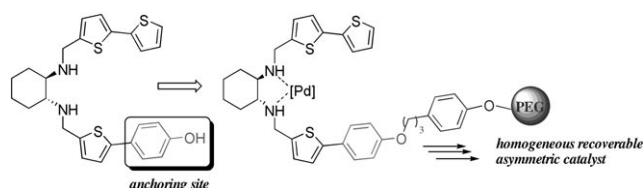
Kazuya Yamaguchi, Toru Imago, Yoshiyuki Ogasawara,
Jun Kasai, Miyuki Kotani, Noritaka Mizuno*



- 1521** New Recoverable Poly(ethylene glycol)-Supported C₁-Diamino-oligothiophene Ligands for Palladium-Promoted Asymmetric Allylic Alkylation (AAA) Reactions

Adv. Synth. Catal. **2006**, 348, 1521–1527

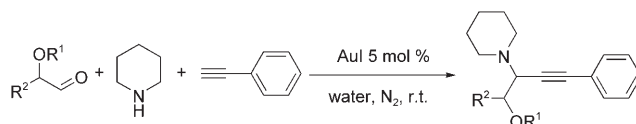
Marco Bandini,* Maurizio Benaglia,* Tommaso Quinto,
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- 1528** Diastereoselective Synthesis of α -Oxyamines via Gold-, Silver- and Copper-Catalyzed, Three-Component Couplings of α -Oxyaldehydes, Alkynes, and Amines in Water

Adv. Synth. Catal. **2006**, 348, 1528–1532

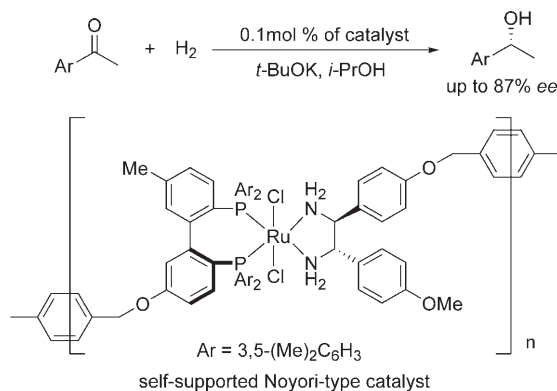
Baosheng Huang, Xiaoquan Yao, Chao-Jun Li*



- 1533** Generation of Self-Supported Noyori-Type Catalysts Using Achiral Bridged-BIPHEP for Heterogeneous Asymmetric Hydrogenation of Ketones

Adv. Synth. Catal. **2006**, 348, 1533–1538

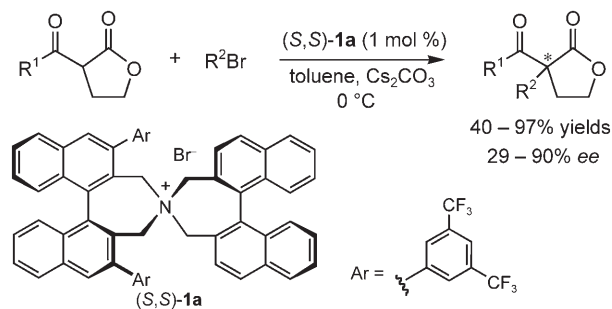
Yuxue Liang, Zheng Wang, Kuiling Ding*



- 1539** Asymmetric Synthesis of α -Acyl- γ -butyrolactones Possessing All-Carbon Quaternary Stereocenters by Phase-Transfer-Catalyzed Alkylation

Adv. Synth. Catal. **2006**, 348, 1539–1542

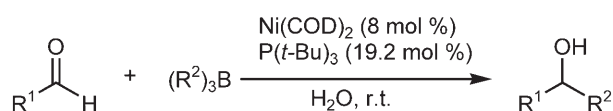
Takashi Ooi, Takashi Miki, Kazuhiro Fukumoto,
Keiji Maruoka*



Alkylation of Aldehydes with Trialkylboranes in Water

Adv. Synth. Catal. **2006**, 348, 1543–1546

Koji Hirano, Hideki Yorimitsu,* Koichiro Oshima*

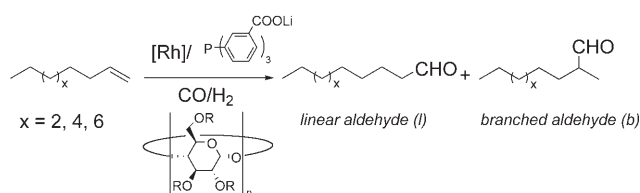


1543

Water-Soluble Triphenylphosphane-3,3',3''-tricarboxylate (m-TPPTC) Ligand and Methylated Cyclodextrins: A New Combination for Biphasic Rhodium-Catalyzed Hydroformylation of Higher Olefins

Adv. Synth. Catal. **2006**, 348, 1547–1552

Sébastien Tilloy,* Emilie Genin, Frédéric Hapiot, David Landy, Sophie Fourmentin, Jean-Pierre Genêt, Véronique Michelet,* Eric Monflier

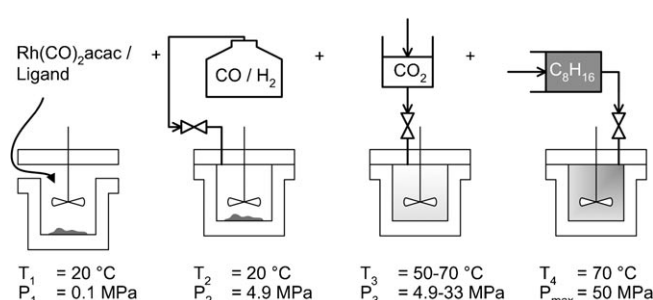


1547

Hydroformylation of 1-Octene in Supercritical Carbon Dioxide and Organic Solvents using Trifluoromethyl-Substituted Triphenylphosphine Ligands

Adv. Synth. Catal. **2006**, 348, 1553–1559

Ard C. J. Koeken, Michiel C. A. van Vliet, Leo J. P. van den Broeke,* Berth-Jan Deelman, Jos T. F. Keurentjes



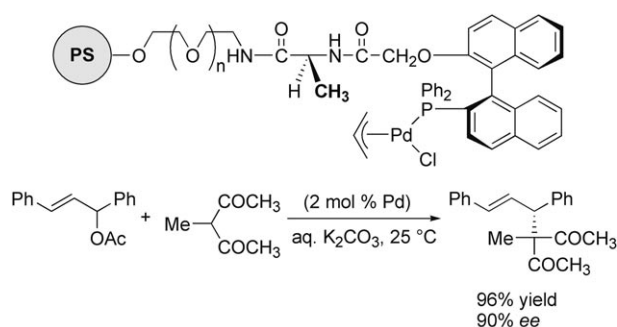
1553

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A Combinatorial Approach to Heterogeneous Asymmetric Aquacatalysis with Amphiphilic Polymer-Supported Chiral Phosphine-Palladium Complexes

Adv. Synth. Catal. **2006**, 348, 1561–1566

Yukinari Kobayashi, Daiki Tanaka, Hiroshi Danjo, Yasuhiro Uozumi*

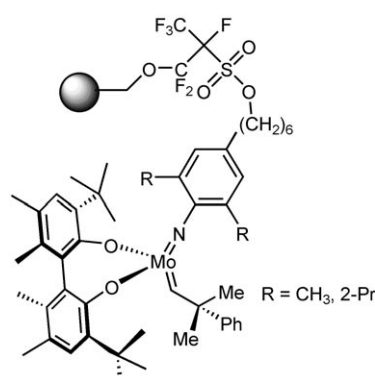


1561

Polymer-Supported Chiral Schrock Catalysts Immobilized via the Arylimido Ligand

Adv. Synth. Catal. **2006**, 348, 1567–1579

Dongren Wang, Roswitha Kröll, Monika Mayr, Klaus Wurst, Michael R. Buchmeiser*

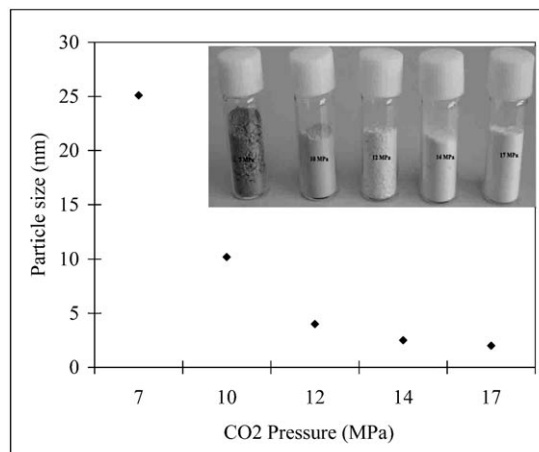


1567

1580 *In situ* Synthesis of Gold Nanoparticles inside the Pores of MCM-48 in Supercritical Carbon Dioxide and its Catalytic Application

Adv. Synth. Catal. **2006**, 348, 1580–1590

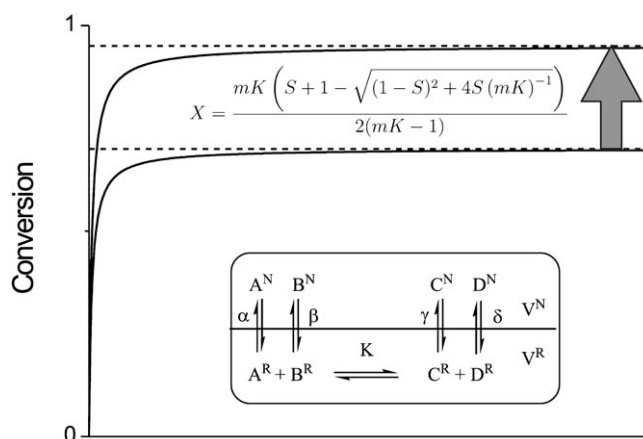
M. Chatterjee, Y. Ikushima,* Y. Hakuta, H. Kawanami



1591 Maximise Equilibrium Conversion in Biphasic Catalysed Reactions: Mathematical Description and Practical Guideline

Adv. Synth. Catal. **2006**, 348, 1591–1596

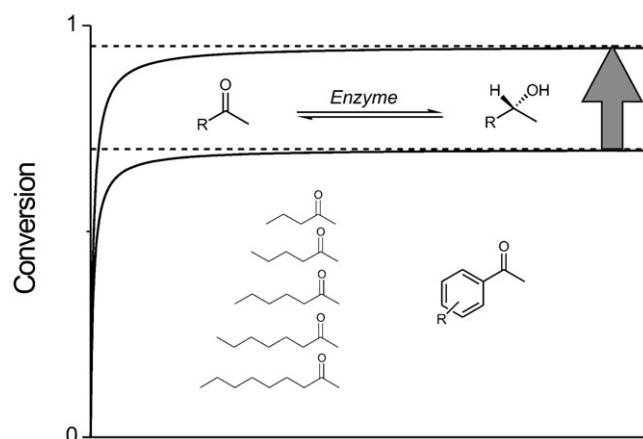
Marrit F. Eckstein, Martina Peters, Julia Lembrecht, Antje C. Spiess, Lasse Greiner*



1597 Maximise Equilibrium Conversion in Biphasic Catalysed Reactions: How to Obtain Reliable Data for Equilibrium Constants?

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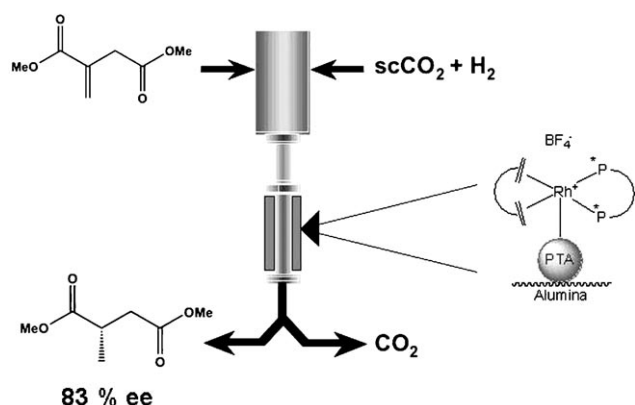
M. F. Eckstein,* J. Lembrecht, J. Schumacher, W. Eberhard, A. C. Spiess, M. Peters, C. Roosen, L. Greiner, W. Leitner, U. Kragl*



Continuous Asymmetric Hydrogenation in Supercritical Carbon Dioxide using an Immobilised Homogeneous Catalyst

Adv. Synth. Catal. **2006**, 348, 1605–1610

Phil Stephenson, Betti Kondor, Peter Licence,
Katherine Scovell, Stephen K. Ross, Martyn Poliakoff*

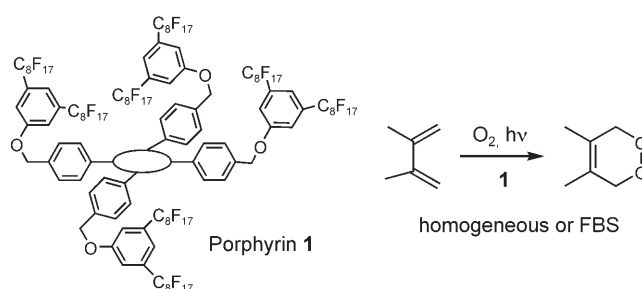


1605

Straightforward Synthesis of a Fluorous Tetraarylporphyrin: an Efficient and Recyclable Sensitizer for Photooxygenation Reactions

Adv. Synth. Catal. **2006**, 348, 1611–1620

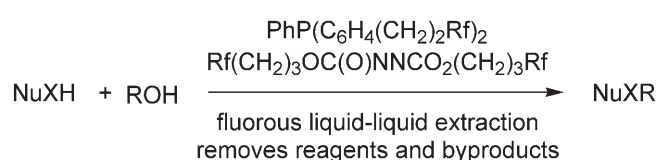
Gianluca Pozzi,* László Merics, Orsolya Holczknecht,
Fabio Martimbianco, Fabrizio Fabris*



1611

Purification of Fluorous Mitsunobu Reactions by Liquid-Liquid Extraction

Adv. Synth. Catal. **2006**, 348, 1621–1624



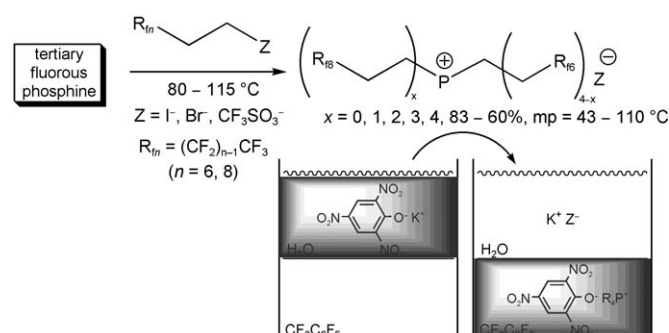
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Dennis P. Curran,* Reena Bajpai, Elizabeth Sanger

Syntheses and Properties of Fluorous Quaternary Phosphonium Salts that Bear Four Ponytails; New Candidates for Phase Transfer Catalysts and Ionic Liquids

Adv. Synth. Catal. **2006**, 348, 1625–1634

Charlotte Emnet, Kathleen M. Weber, José A. Vidal,
Crestina S. Consorti, Alison M. Stuart,* J. A. Gladysz*

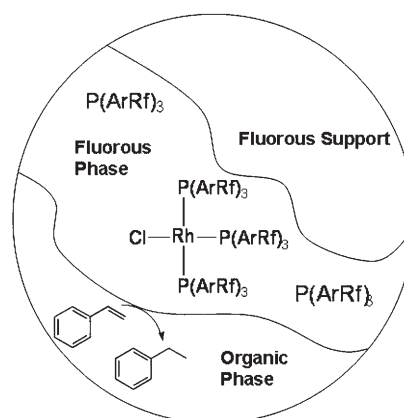


1625

Supported Fluorous Phase Catalysis on PTFE, Fluoroalkylated Micro- and Meso-porous Silica

Adv. Synth. Catal. **2006**, 348, 1635–1639

Eric G. Hope,* James Sherrington, Alison M. Stuart



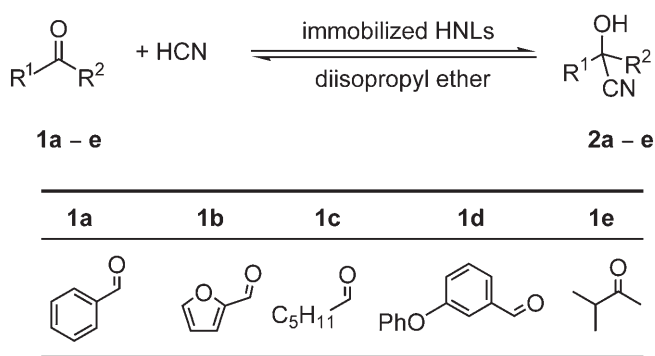
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Fluorine-induced partitioning of reactants into catalyst-containing polymer phase

Adv. Synth. Catal. **2006**, 348, 1645–1654

Fabien L. Cabirol, Ulf Hanefeld, Roger A. Sheldon*



Adv. Synth. Catal. **2006**, 348, 1655–1661

$$\text{R}-\text{CHO} \xrightarrow[\text{MeHnL CLEA, DIPE, buffer pH 5.5}]{\text{HCN}} \text{R}-\text{CH}(\text{OH})-\text{CN}$$

$$\text{R} = \text{C}_6\text{H}_5, \text{CH}_2=\text{CH}, \text{trans-C}_6\text{H}_5-\text{CH}=\text{CH}$$

$$\text{R}-\text{CO}-\text{CH}_3 \xrightarrow[\text{MeHnL CLEA, DIPE, buffer pH 5.5}]{\text{HCN}} \text{R}-\text{C}(\text{OH})(\text{CN})-\text{CH}_3$$

$$\text{R} = \text{C}_6\text{H}_5, \text{C}_6\text{H}_5\text{CH}_2$$

Adv. Synth. Catal. **2006**, 348, 1662–1670

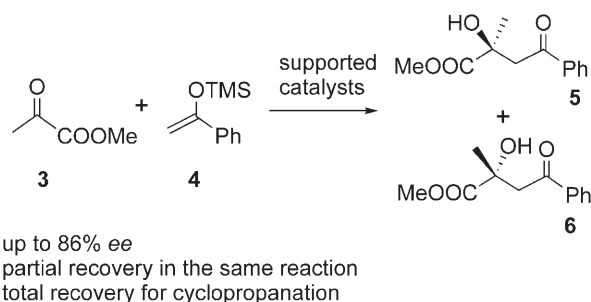
Adv. Synth. Catal. **2006**, 348, 1671–1679

$[M] = [RuCl_2(\eta^6\text{-arene})]$
 $[RhCl(cod)]$
 $[IrCl(cod)]$

Multipurpose box- and azabox-Based Immobilized Chiral Catalysts

Adv. Synth. Catal. **2006**, 348, 1680–1688

José M. Fraile, Ignacio Pérez, José A. Mayoral,*
Oliver Reiser

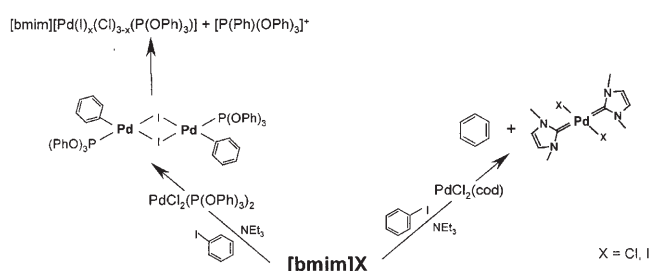


1680

Methoxycarbonylation of Iodobenzene in Ionic Liquids. A Case of Inhibiting Effect of Imidazolium Halides

Adv. Synth. Catal. **2006**, 348, 1689–1698

W. Zawartka, A. M. Trzeciak,* J. J. Ziolkowski, T. Lis,
Z. Ciunik, J. Pernak

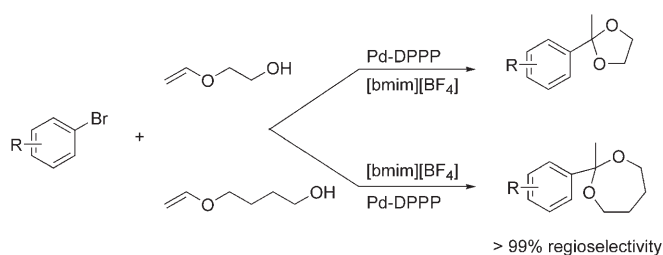


1689

Palladium-Catalysed Direct Regioselective Synthesis of Cyclic Ketals from Electron-Rich Olefins and Aryl Bromides in Ionic Liquids

Adv. Synth. Catal. **2006**, 348, 1699–1704

Zeynab Hyder, Jun Mo, Jianliang Xiao*

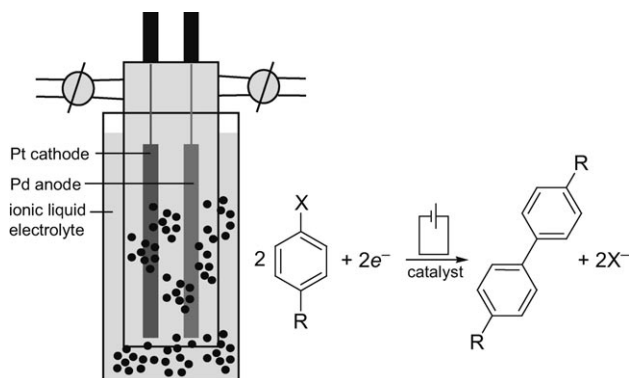


1699

Electroreductive Palladium-Catalysed Ullmann Reactions in Ionic Liquids: Scope and Mechanism

Adv. Synth. Catal. **2006**, 348, 1705–1710

Laura Durán Pachón, Cornelis J. Elsevier, Gadi Rothenberg*

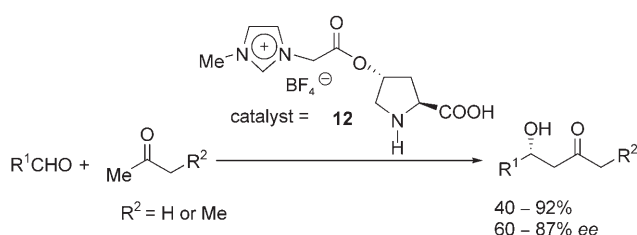


1705

Ionic-Liquid-Supported Organocatalyst: Efficient and Recyclable Ionic-Liquid-Anchored Proline for Asymmetric Aldol Reaction

Adv. Synth. Catal. **2006**, 348, 1711–1718

Weishi Miao, Tak Hang Chan*

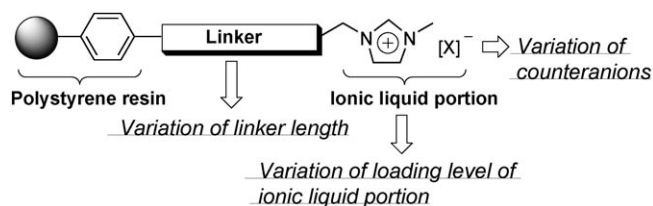


1711

- 1719** Structural Modification of Polymer-Supported Ionic Liquids as Catalysts for Nucleophilic Substitution Reactions Including Fluorination

Adv. Synth. Catal. **2006**, 348, 1719–1727

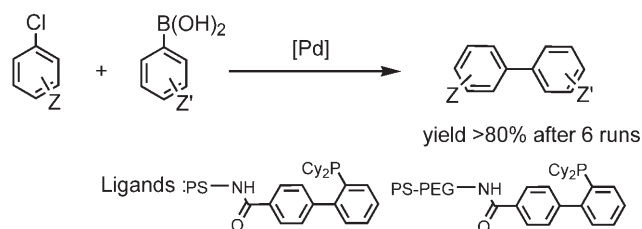
 Dong Wook Kim, Dong Jin Hong, Keun Sam Jang, Dae Yoon Chi*



- 1728** Efficient Recycling in Suzuki–Miyaura Reactions of Aryl Chlorides with Arylboronic Acids using Polymer-Supported Aryldicyclohexylphosphine

Adv. Synth. Catal. **2006**, 348, 1728–1733

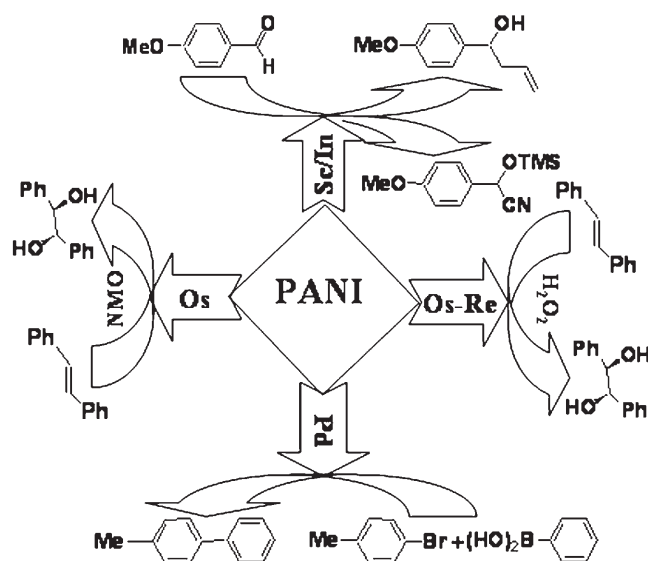
Katarzyna Glegoła, Eric Framery,* K. Michał Pietrusiewicz, Denis Sinou*



- 1734** Preparation, Characterization and Catalytic Properties of Polyaniline-Supported Metal Complexes

Adv. Synth. Catal. **2006**, 348, 1734–1742

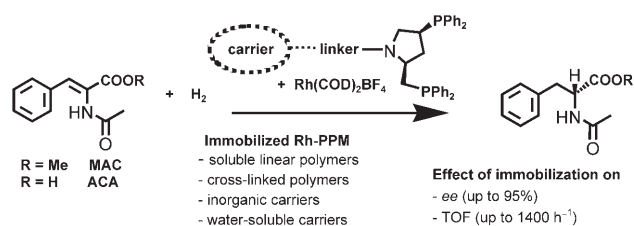
 Boyapati M. Choudary,* Moumita Roy, Sarabindu Roy, M. Lakshmi Kantam,* Bojja Sreedhar, Karasala Vijay Kumar



- 1743** The Immobilization of Rhodium-4-(diphenylphosphino)-2-(diphenylphosphinomethyl)-pyrrolidine (Rh-PPM) Complexes: A Systematic Study

Adv. Synth. Catal. **2006**, 348, 1743–1751

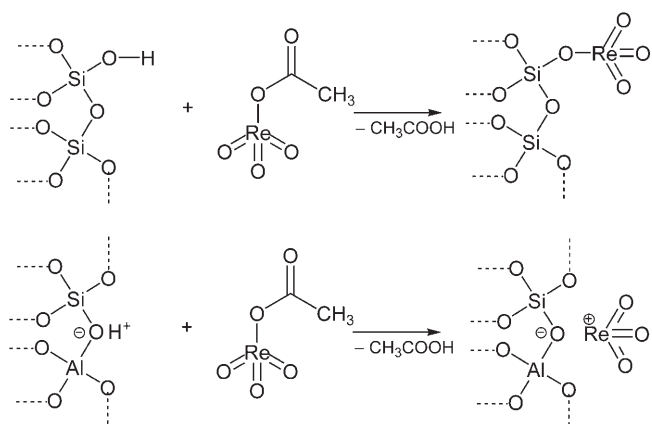
 Benoît Pugin,* Hans-Ulrich Blaser



Heterogenisation of Acylperhenate on Mesoporous Materials and its Application in Catalysis

Adv. Synth. Catal. **2006**, 348, 1752–1759

Draganco Veljanovski, Ayyamperumal Sakthivel,
Wolfgang A. Herrmann,* Fritz E. Kühn*

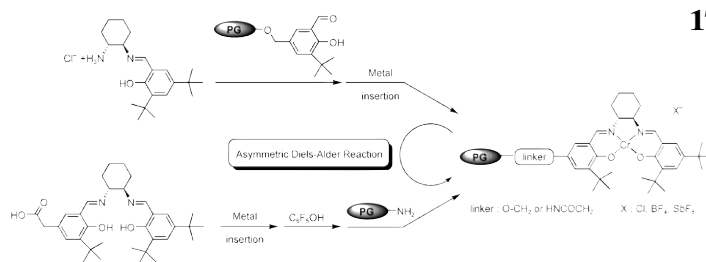


1752

Polyglycerol-Supported Chromium-Salen as a High-Loading Dendritic Catalyst for Stereoselective Diels–Alder Reactions

Adv. Synth. Catal. **2006**, 348, 1760–1771

 Chakib Hajji, Sebastian Roller, Maryam Beigi,
Andreas Liese,* Rainer Haag*



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