

AIMS AND SCOPE

Although 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 metal catalysis, biocatalysis and organocatalysis 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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2007, 349, 10, Pages 1541–1816

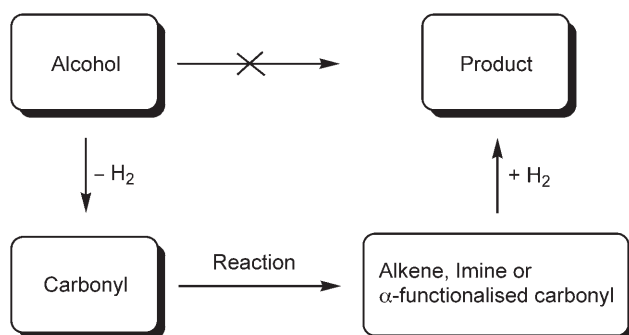
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REVIEW

Borrowing Hydrogen in the Activation of Alcohols

Adv. Synth. Catal. **2007**, 349, 1555–1575

Malai Haniti S. A. Hamid, Paul A. Slatford
Jonathan M. J. Williams*




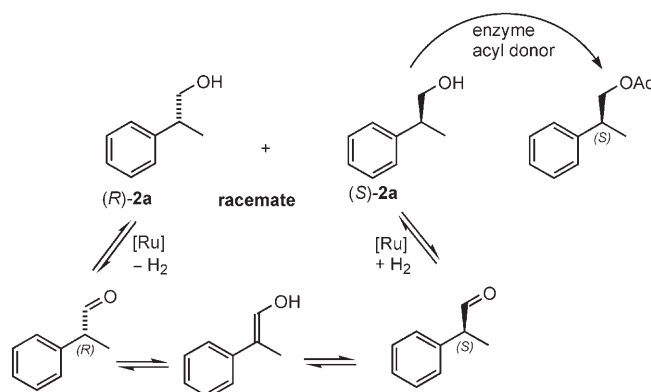
1555

COMMUNICATIONS

1577 Dynamic Kinetic Resolution of Primary Alcohols with an Unfunctionalized Stereogenic Center in the β -Position

Adv. Synth. Catal. **2007**, 349, 1577–1581

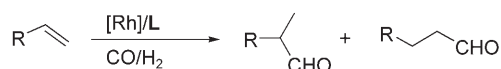
 Dirk Strübing, Patrik Krumlinde, Julio Piera, Jan-E. Bäckvall*



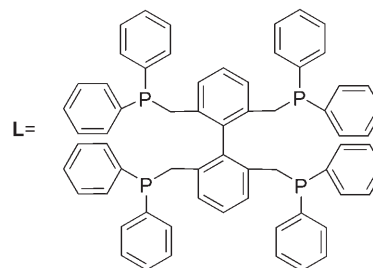
1582 Retaining Catalyst Performance at High Temperature: The Use of a Tetraphosphine Ligand in the Highly Regioselective Hydroformylation of Terminal Olefins

Adv. Synth. Catal. **2007**, 349, 1582–1586

Yongjun Yan, Xiaowei Zhang, Xumu Zhang*




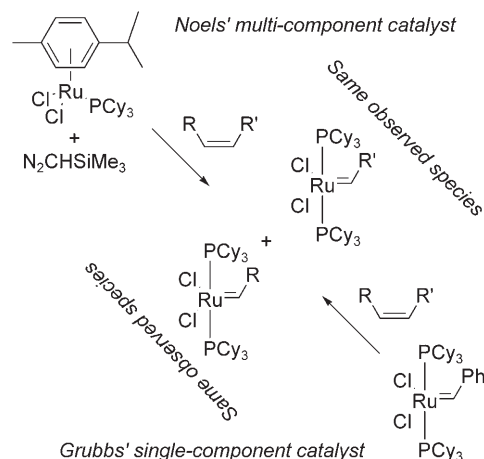
High regioselectivity retained at high temperature



1587 Noels' vs. Grubbs' Catalysts: Evidence for One Unique Active Species for Two Different Systems!


Adv. Synth. Catal. **2007**, 349, 1587–1591

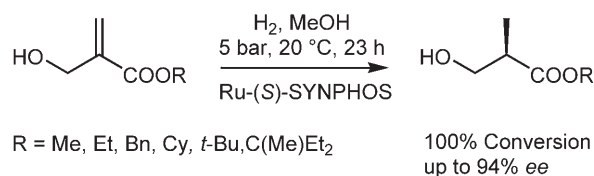
 Mathieu Ahr, Chloé Thieuleux,* Christophe Copéret, Bernard Fenet, Jean-Marie Basset*



1592 Highly Enantioselective Synthesis of 3-Hydroxy-2-methylpropanoic Acid Esters through Ruthenium-SYNPHOS®-Catalyzed Hydrogenation: Useful Building Blocks for the Synthetic Community

Adv. Synth. Catal. **2007**, 349, 1592–1596

 Séverine Jeulin, Tahar Ayad, Virginie Ratovelomanana-Vidal,* Jean-Pierre Genêt*



Asymmetric Friedel–Crafts Alkylations of Indoles with Ethyl Glyoxylate Catalyzed by (*S*)-BINOL-Titanium(IV) Complex: Direct Access to Enantiomerically Enriched 3-Indolyl(hydroxy)acetates

Adv. Synth. Catal. **2007**, 349, 1597–1603



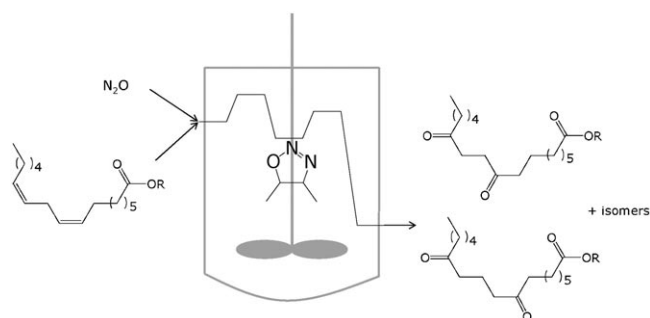
1597

Hong-Ming Dong, Hai-Hua Lu, Liang-Qiu Lu, Cai-Bao Chen, Wen-Jing Xiao*

Solvent- and Metal-Free Ketonization of Fatty Acid Methyl Esters and Triacylglycerols with Nitrous Oxide

Adv. Synth. Catal. **2007**, 349, 1604–1608

Ive Hermans, Kris Janssen, Bart Moens, An Philippaerts, Boris Van Berlo, Jozef Peeters, Pierre A. Jacobs, Bert F. Sels*

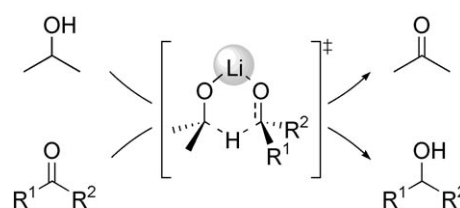


1604

A Simple and Efficient Catalytic Method for the Reduction of Ketones

Adv. Synth. Catal. **2007**, 349, 1609–1613

Jesper Ekström, Jenny Wettergren, Hans Adolfsson*

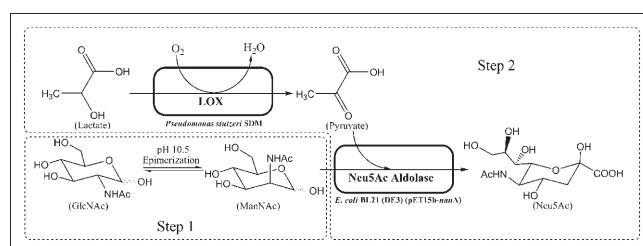


1609

Efficient Whole-Cell Biocatalytic Synthesis of *N*-Acetyl-D-neuraminic Acid

Adv. Synth. Catal. **2007**, 349, 1614–1618

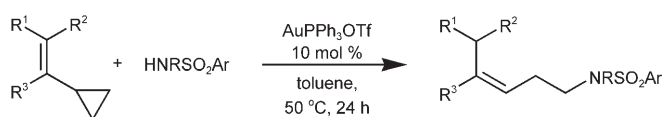
Ping Xu,* Jian Hua Qiu, Yi Nan Zhang, Jing Chen, Peng George Wang, Bing Yan, Jing Song, Ri Mo Xi, Zi Xin Deng, Cui Qing Ma*



1614

Gold(I)- and Brønsted Acid-Catalyzed Ring-Opening of Unactivated Vinylcyclopropanes with Sulfonamides

Adv. Synth. Catal. **2007**, 349, 1619–1623



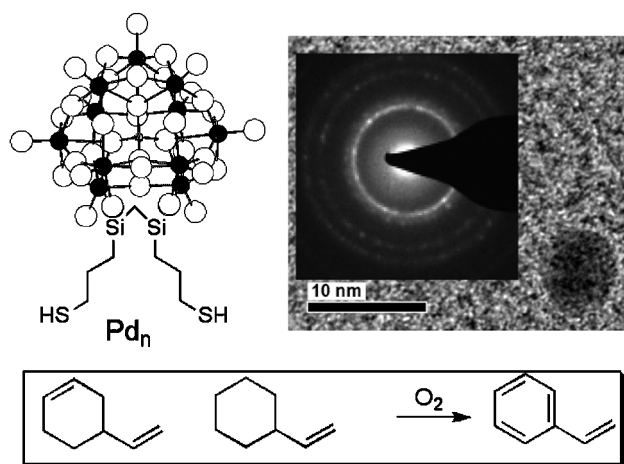
1619

Wen-Jian Shi, Yanyun Liu, Pietro Butti, Antonio Togni*

- 1624** Stabilization of Palladium Nanoparticles by Polyoxometalates Appended with Alkylthiol Tethers and their Use as Binary Catalysts for Liquid Phase Aerobic Oxydehydrogenation

Adv. Synth. Catal. **2007**, 349, 1624–1628

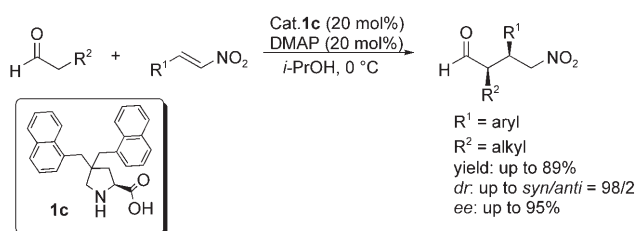
Mario De bruyn, Ronny Neumann*



- 1629** 4,4'-Disubstituted-L-proline Catalyzes the Direct Asymmetric Michael Addition of Aldehydes to Nitrostyrenes

Adv. Synth. Catal. **2007**, 349, 1629–1632

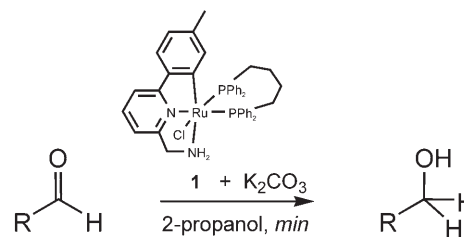
Liu-qun Gu, Gang Zhao*



- 1633** Fast and Chemoselective Transfer Hydrogenation of Aldehydes Catalyzed by a Terdentate CNN Ruthenium Complex [RuCl(CNN)(dppb)]

Adv. Synth. Catal. **2007**, 349, 1633–1636

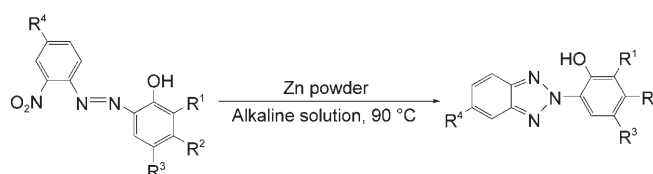
Walter Baratta,* Katia Siega, Pierluigi Rigo



- 1637** Preparation of 2-Aryl-2H-benzotriazoles by Zinc-Mediated Reductive Cyclization of *o*-Nitrophenylazophenols in Aqueous Media without the Use of Organic Solvents

Adv. Synth. Catal. **2007**, 349, 1637–1640

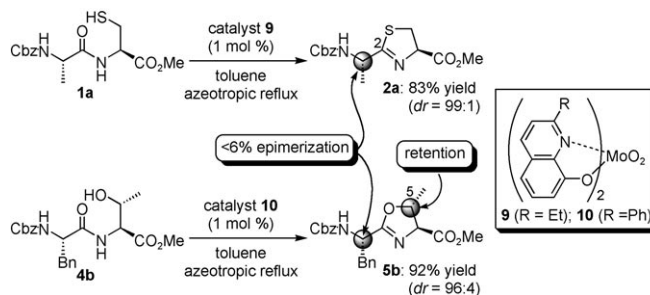
Guo-Bin Liu,* Hong-Yun Zhao, Hong-Jie Yang, Xiang Gao, Miao-Kui Li, Thies Thiemann



- 1641** Catalytic Synthesis of Peptide-Derived Thiazolines and Oxazolines using Bis(quinolinolato)dioxomolybdenum(VI) Complexes

Adv. Synth. Catal. **2007**, 349, 1641–1646

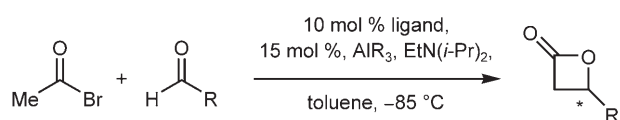
Akira Sakakura, Rei Kondo, Shuhei Umemura, Kazuaki Ishihara*



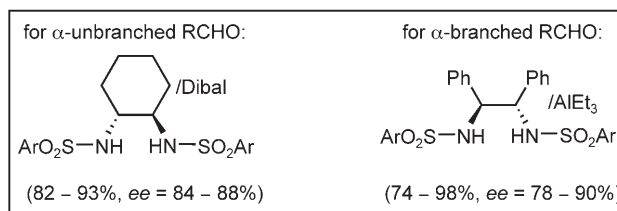
Practical Enantioselective Synthesis of β -Lactones Catalyzed by Aluminum Bissulfonamide Complexes

Adv. Synth. Catal. **2007**, 349, 1647–1652

 Thomas Kull, René Peters*



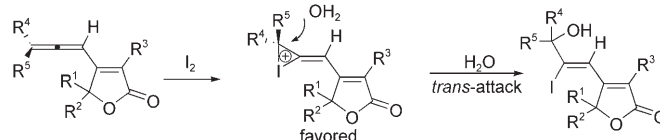
1647



Highly Regio- and Stereoselective Iodohydroxylation of Non-Heteroatom-Substituted Allenes: An Efficient Synthesis of 4-[3'-Hydroxy-2'-iodoalk-1'(Z)-enyl]-2(5H)-furanone Derivatives

Adv. Synth. Catal. **2007**, 349, 1653–1656


 Zhenhua Gu, Youqian Deng, Wei Shu, Shengming Ma*

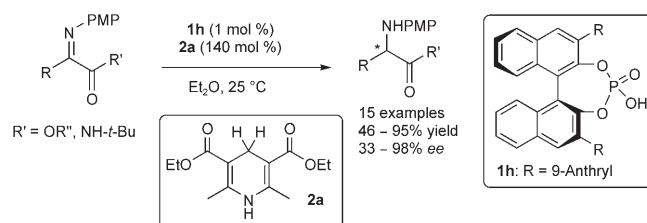


1653

Highly Enantioselective Transfer Hydrogenation of α -Imino Esters by a Phosphoric Acid

Adv. Synth. Catal. **2007**, 349, 1657–1660


 Qiang Kang, Zhuo-An Zhao, Shu-Li You*

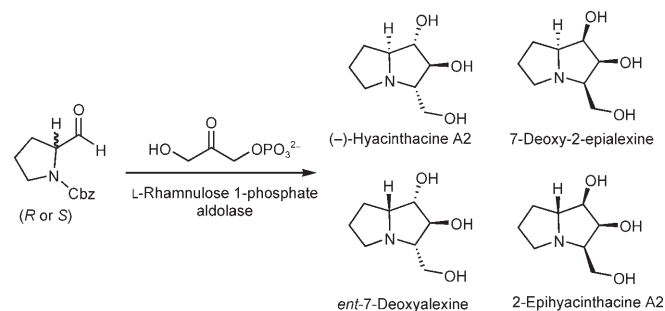


1657

Chemoenzymatic Synthesis and Inhibitory Activities of Hyacinthacines A₁ and A₂ Stereoisomers

Adv. Synth. Catal. **2007**, 349, 1661–1666


 Jordi Calveras, Josefina Casas, Teodor Parella, Jesús Joglar, Pere Clapés*

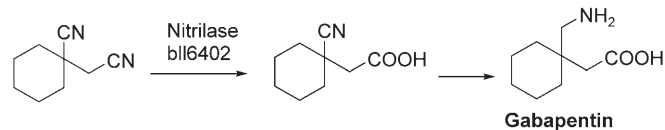


1661

Nitrilase-Catalyzed Selective Hydrolysis of Dinitriles and Green Access to the Cyanocarboxylic Acids of Pharmaceutical Importance

Adv. Synth. Catal. **2007**, 349, 1667–1670


 Dunming Zhu, Chandrani Mukherjee, Edward R. Biehl, Ling Hua*

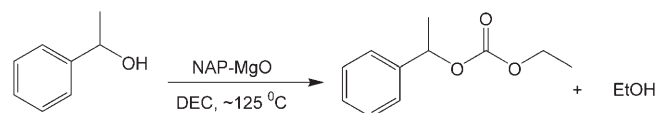


1667

An Efficient Synthesis of Organic Carbonates using Nanocrystalline Magnesium Oxide

Adv. Synth. Catal. **2007**, 349, 1671–1675

 M. Lakshmi Kantam,* Ujjwal Pal, B. Sreedhar, B. M. Choudary




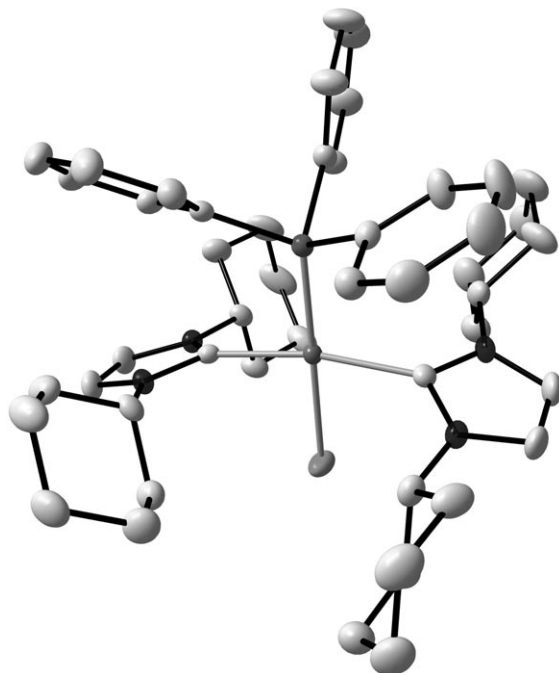
1671

FULL PAPERS

- 1677** Synthesis and Characterization of N-Heterocyclic Carbene Substituted Phosphine and Phosphite Rhodium Complexes and their Catalytic Properties in Hydrogenation Reactions

Adv. Synth. Catal. **2007**, 349, 1677–1691

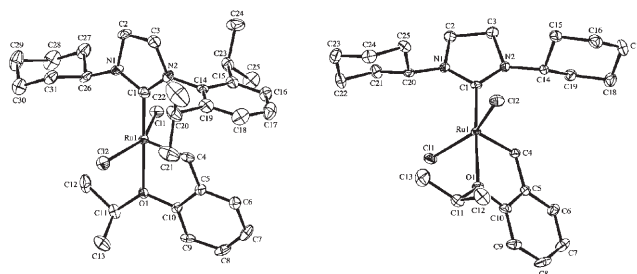
 Wolfgang A. Herrmann,* Guido D. Frey,*
Eberhardt Herdtweck, Martin Steinbeck



- 1692** Comparative Investigation of Hoveyda–Grubbs Catalysts bearing Modified N-Heterocyclic Carbene Ligands

Adv. Synth. Catal. **2007**, 349, 1692–1700

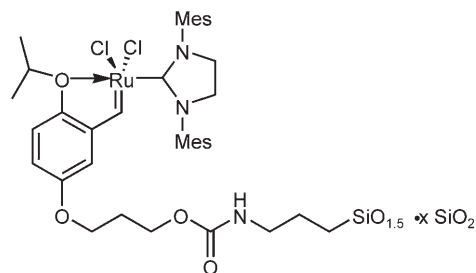
Nele Ledoux,* Anthony Linden, Bart Allaert
Hans Vander Mierde, Francis Verpoort*



- 1701** Hybrid Organic-Inorganic Materials Derived from a Monosilylated Hoveyda-type Ligand as Recyclable Diene and Enyne Metathesis Catalysts

Adv. Synth. Catal. **2007**, 349, 1701–1713

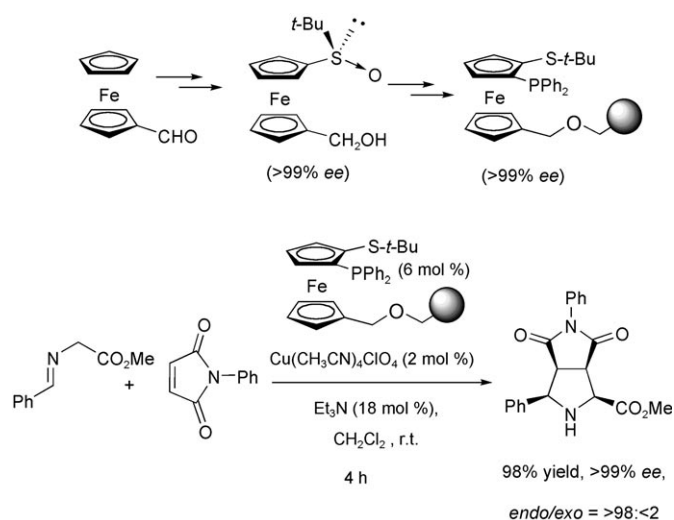
Xavier Elias, Roser Pleixats,* Michel Wong Chi Man,*
Joël J. E. Moreau



Synthesis of Polymer-Supported Fesulphos Ligands and their Application in Asymmetric Catalysis

Adv. Synth. Catal. **2007**, 349, 1714–1724

Belén Martín-Matute, Susana Isabel Pereira,
Eduardo Peña-Cabrera, Javier Adrio, Artur M. S. Silva,
Juan C. Carretero*

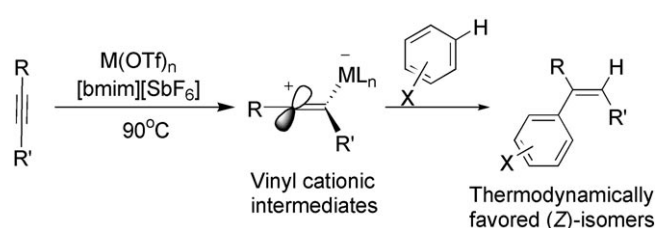


1714

Metal Triflate-Catalyzed Regio- and Stereoselective Friedel–Crafts Alkenylation of Arenes with Alkynes in an Ionic Liquid: Scope and Mechanism

Adv. Synth. Catal. **2007**, 349, 1725–1737

Mi Young Yoon, Jin Hong Kim, Doo Seoung Choi,
Ueon Sang Shin, Jin Yong Lee, Choong Eui Song*

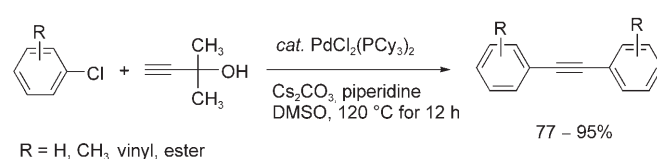


1725

Palladium-Catalyzed Efficient and One-Pot Synthesis of Diarylacetylenes from the Reaction of Aryl Chlorides with 2-Methyl-3-butyne-2-ol

Adv. Synth. Catal. **2007**, 349, 1738–1742

Chenyi Yi, Ruimao Hua,* Hanxiang Zeng, Qiufeng Huang

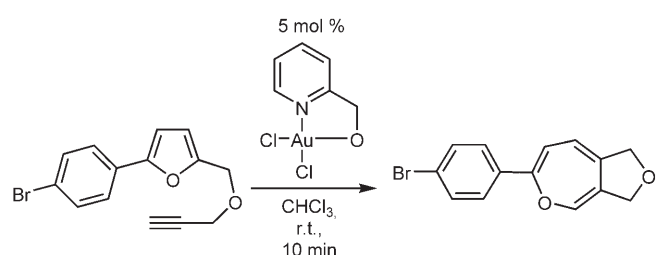


1738

Gold Catalysis: Oxepines from γ -Alkynylfurans

Adv. Synth. Catal. **2007**, 349, 1743–1750

A. Stephen K. Hashmi,* Elzen Kurpejović, Michael Wölfle,
Wolfgang Frey, Jan W. Bats

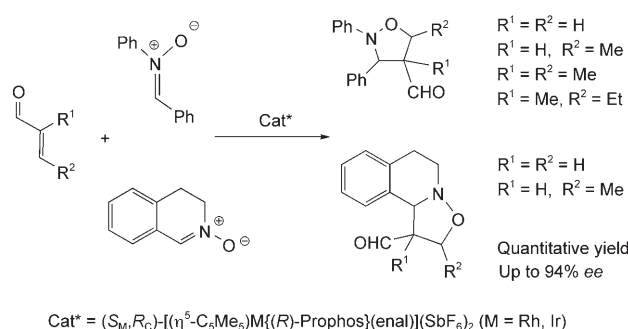


1743

Asymmetric 1,3-Dipolar Cycloaddition Reaction between α,β -Unsaturated Aldehydes and Nitrones Catalyzed by Well-Defined Iridium or Rhodium Catalysts

Adv. Synth. Catal. **2007**, 349, 1751–1758

Daniel Carmona,* M. Pilar Lamata,* Fernando Viguri,
Ricardo Rodríguez, Thomas Fischer, Fernando J. Lahoz,
Isabel T. Dobrinovitch, Luis A. Oro

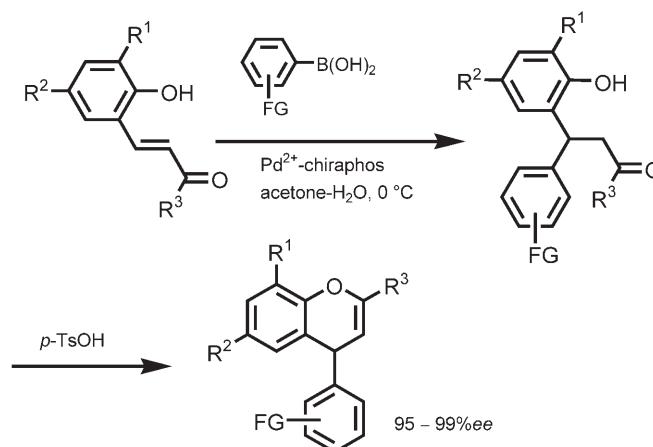


1751

- 1759** Palladium(II)-Catalyzed 1,4-Addition of Arylboronic Acids to β -Arylenones for Enantioselective Synthesis of 4-Aryl-4H-chromenes

Adv. Synth. Catal. **2007**, 349, 1759–1764

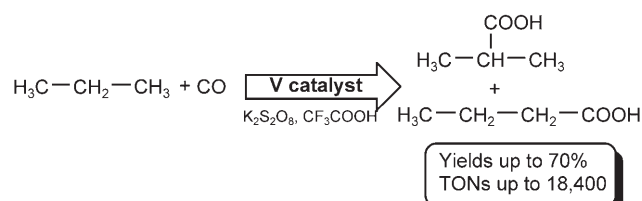
 Takashi Nishikata, Yasunori Yamamoto, Norio Miyaura*



- 1765** Highly Efficient Direct Carboxylation of Propane into Butyric Acids Catalyzed by Vanadium Complexes


Adv. Synth. Catal. **2007**, 349, 1765–1774

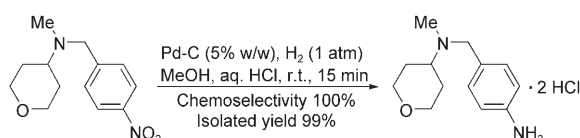
Marina V. Kirillova, José A. L. da Silva, João J. R. Fraústo da Silva, António F. Palavra, Armando J. L. Pombeiro*



- 1775** An Efficient and Practical Method for Highly Chemoselective Hydrogenation of Nitrobenzylamines to Aminobenzylamine Hydrochlorides

Adv. Synth. Catal. **2007**, 349, 1775–1780

 Chuanjie Cheng, Xinyan Wang, Lixin Xing, Bo Liu, Rui Zhu, Yuefei Hu*

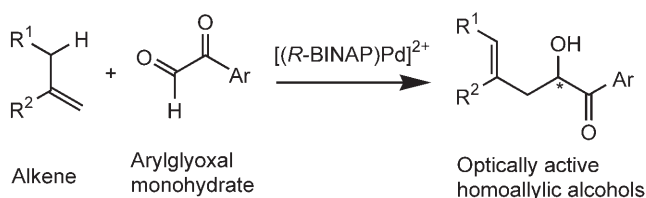


A key pharmacophore and intermediate for the non-peptide CCR5 antagonist TAK-779

- 1781** Enantioselective Carbonyl-Ene Reactions of Arylglyoxals with a Chiral Palladium(II)-BINAP Catalyst

Adv. Synth. Catal. **2007**, 349, 1781–1795

 He-Kuan Luo,* Lim Bee Khim, Herbert Schumann, Christina Lim, Tan Xiang Jie, Hai-Yan Yang

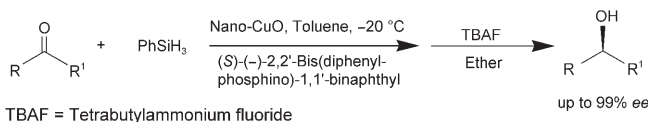


UPDATES

- 1797** Asymmetric Hydrosilylation of Prochiral Ketones Catalyzed by Nanocrystalline Copper(II) Oxide

Adv. Synth. Catal. **2007**, 349, 1797–1802

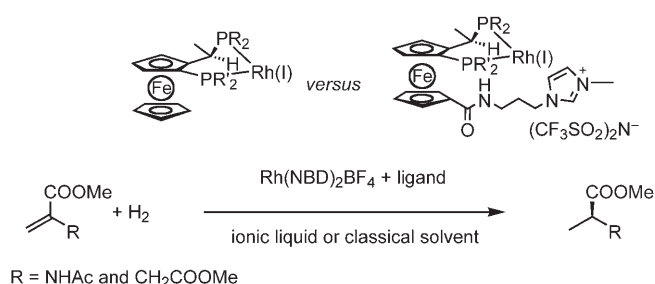
M. Lakshmi Kantam,* Soumi Laha, Jagjit Yadav, Pravin R. Likhar, B. Sreedhar, B. M. Choudary



Josiphos Ligands with an Imidazolium Tag and their Application for the Enantioselective Hydrogenation in Ionic Liquids

Adv. Synth. Catal. **2007**, 349, 1803–1807

Xiangdong Feng, Benoît Pugin,* Ernst Küsters, Gottfried Sedelmeier, Hans-Ulrich Blaser*



1803

BOOK REVIEWS

Asymmetric Synthesis – The Essentials
Edited by Mathias Christmann and Stefan Bräse

Adv. Synth. Catal. **2007**, 349, 1809

1809

Henk Hiemstra

The Claisen Rearrangement: Methods and Applications
Edited by Martin Hiersemann, Udo Nubbemeyer

Adv. Synth. Catal. **2007**, 349, 1810

1810

Rainer Mahrwald

Functional Organic Materials: Syntheses, Strategies and Applications
Edited by Thomas J. J. Müller, Uwe H. F. Bunz

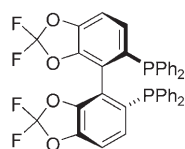
Adv. Synth. Catal. **2007**, 349, 1811–1812

1811

Thomas Baumgartner

CORRIGENDUM

In the paper by P. H. Phua, A. J. P. White, J. G. de Vries and K. K. Hii in Issue 4+5, 2006, pp. 587–592 (DOI: 10.1002/adsc.200505404), the structural formula of (*R*)-Difluorophos in Figure 1 on page 589 is incorrect. The correct structure is given below.



DIFLUORPHOS

The compound was procured commercially (Strem) for this work. The synthesis of this ligand and its application in asymmetric catalysis was first reported by Genet and coworkers [S. Jeulin, S. Duprat de Paule, V. Ratovelomanana-Vidal, J.-P. Genet, N. Champion, and P. Dellis, *Angew. Chem. Int. Ed.* **2004**, 43, 320–325]. We are grateful to Professor J.-P. Genet for pointing out the error.



Supporting information on the WWW (see article for access details).

*Author to whom correspondence should be addressed.