

## 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.

# Advanced Synthesis & Catalysis

succeeding *Journal für praktische Chemie*  
(founded in 1828)

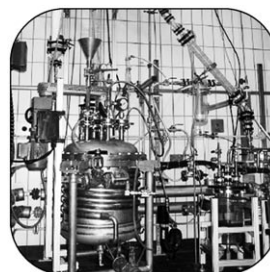
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2006, 348, 1, Pages 1–264

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## COVER PICTURE

The cover picture shows a typical vessel for industrial scale-up of chemical reactions, in this case for the synthesis of dialkylphosphinobiphenyl ligands. These ligands are important catalyst components for the amination of aryl halides. For more details, see the Review by Stephen L. Buchwald, Christelle Mauger, Gerard Mignani, and Ulrich Scholz on pages 23–39.

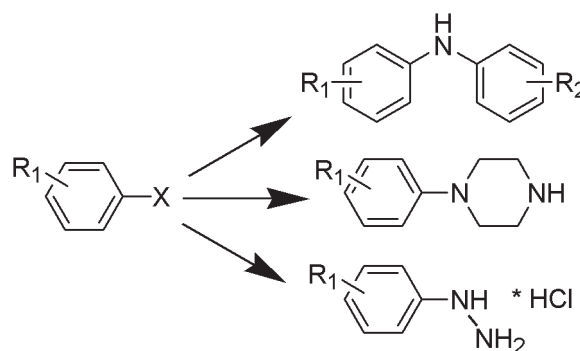


## REVIEW

Industrial-Scale Palladium-Catalyzed Coupling of Aryl Halides and Amines – A Personal Account

*Adv. Synth. Catal.* **2006**, 348, 23–39

Stephen L. Buchwald, Christelle Mauger, Gerard Mignani,\*  
Ulrich Scholz\*



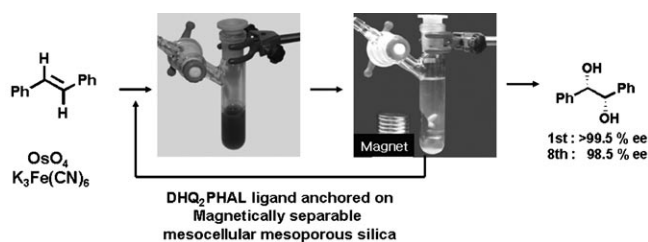
23

## COMMUNICATIONS

- 41** Filtration-Free Recyclable Catalytic Asymmetric Dihydroxylation Using a Ligand Immobilized on Magnetic Mesocellular Mesoporous Silica

*Adv. Synth. Catal.* **2006**, *348*, 41–46

Daewon Lee, Jinwoo Lee, Honggeun Lee, Sunmi Jin, Taeghwan Hyeon,\* B. Moon Kim\*

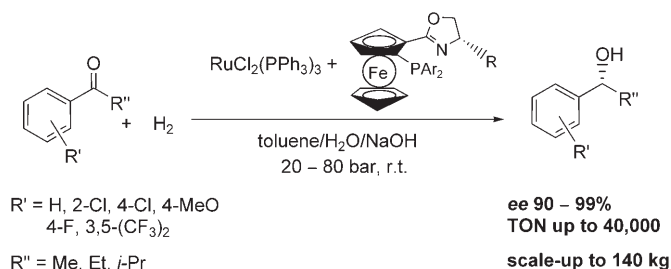


- 47** Ru-(Phosphine-Oxazoline) Complexes as Effective, Industrially Viable Catalysts for the Enantioselective Hydrogenation of Aryl Ketones

*Adv. Synth. Catal.* **2006**, *348*, 47–50



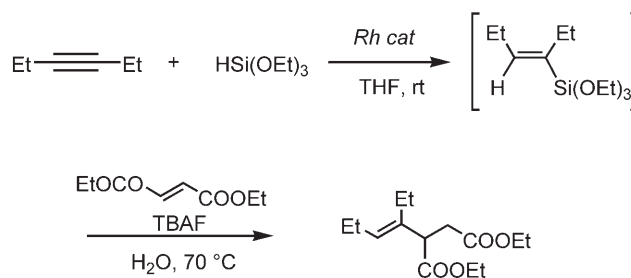
Frédéric Naud,\* Christophe Malan, Felix Spindler, Carsten Rüggeberg, Andreas T. Schmidt, Hans-Ulrich Blaser



- 51** Rhodium-Catalyzed Hydrosilylation of Internal Alkynes with Silane Reagents bearing Heteroatom Substituents. Studies on the Regio-/Stereochemistry and Transformation of the Produced Alkenylsilanes by Rhodium-Catalyzed Conjugate Addition

*Adv. Synth. Catal.* **2006**, *348*, 51–54

Tomoyuki Sanada, Tsuyoshi Kato, Makoto Mitani, Atsunori Mori\*

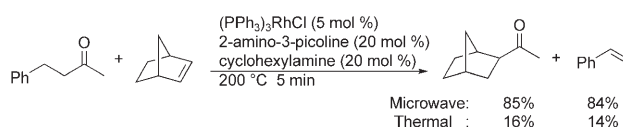


- 55** Solvent-Free Chelation-Assisted Catalytic C–C Bond Cleavage of Unstrained Ketone by Rhodium(I) Complexes under Microwave Irradiation

*Adv. Synth. Catal.* **2006**, *348*, 55–58



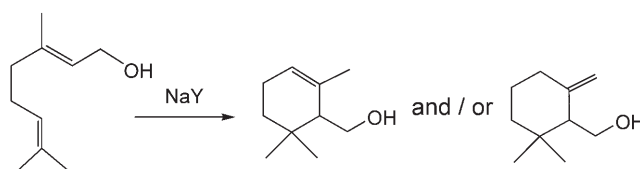
Jeong-Ae Ahn, Duck-Ho Chang, Young Jun Park, Ye Rim Yon, André Loupy, Chul-Ho Jun\*



- 59** Y-Zeolite-Catalyzed Cyclizations of Terpenols

*Adv. Synth. Catal.* **2006**, *348*, 59–62

Wei Yu,\* Fengling Bian, Yuan Gao, Li Yang, Zhong-Li Liu\*

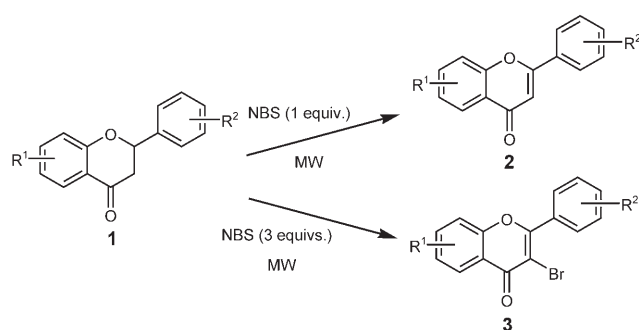


# A Selective Transformation of Flavanones to 3-Bromoflavones Under Microwave Irradiation

*Adv. Synth. Catal.* **2006**, 348, 63–67



Zhongzhen Zhou, Peiliang Zhao, Wei Huang, Guangfu Yang\*

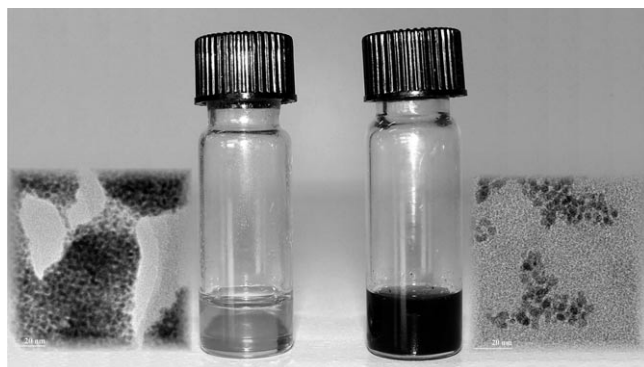


63

# Remarkable Anion and Cation Effects on Stille Reactions in Functionalised Ionic Liquids

*Adv. Synth. Catal.* **2006**, 348, 68–74

Cinzia Chiappe,\* Daniela Pieraccini, Dongbin Zhao, Zhaofu Fei, Paul J. Dyson\*



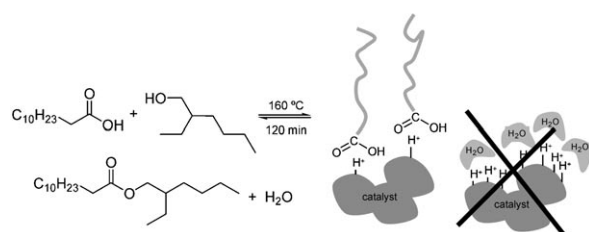
68

## FULL PAPERS

# Solid Acid Catalysts for Biodiesel Production —Towards Sustainable Energy

*Adv. Synth. Catal.* **2006**, 348, 75–81

Anton A. Kiss, Alexandre C. Dimian, Gadi Rothenberg\*

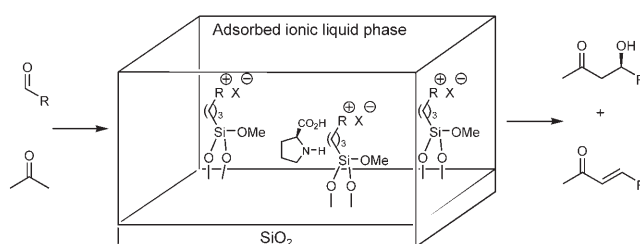


75

# Supported Ionic Liquids. New Recyclable Materials for the L-Proline-Catalyzed Aldol Reaction

*Adv. Synth. Catal.* **2006**, 348, 82–92

Michelangelo Gruttadauria,\* Serena Riel, Carmela Aprile, Paolo Lo Meo, Francesca D'Anna, Renato Noto\*



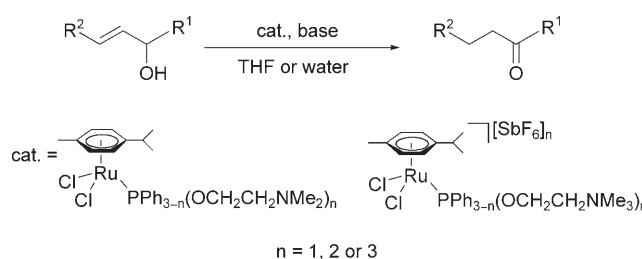
82

# Catalytic Isomerization of Allylic Alcohols by ( $\eta^6$ -p-Cymene)-Ruthenium(II) Complexes in Organic and Aqueous Media: New Recyclable and Highly Efficient Catalysts in Water Containing Ammonium-Functionalized Ligands

*Adv. Synth. Catal.* **2006**, 348, 93–100



Pascale Crochet,\* Josefina Díez, Mariano A. Fernández-Zúmel, José Gimeno\*



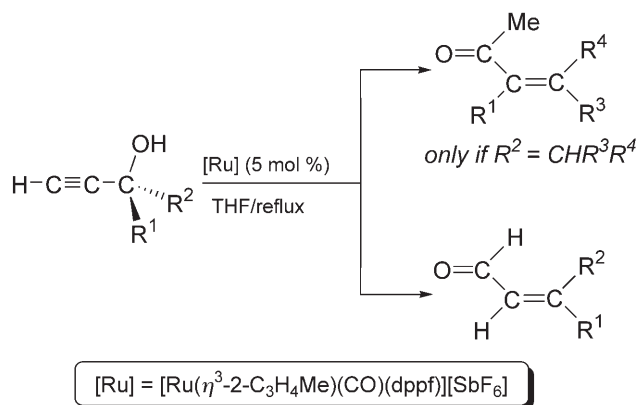
93

- 101** Isomerization of Propargylic Alcohols into  $\alpha,\beta$ -Unsaturated Carbonyl Compounds Catalyzed by the Sixteen-Electron Allyl-Ruthenium(II) Complex  $[\text{Ru}(\eta^3\text{-}2\text{-C}_3\text{H}_4\text{Me})\text{-(CO)(dppf)}][\text{SbF}_6]$

*Adv. Synth. Catal.* **2006**, 348, 101–110



Victorio Cadierno,\* Sergio E. García-Garrido, José Gimeno\*

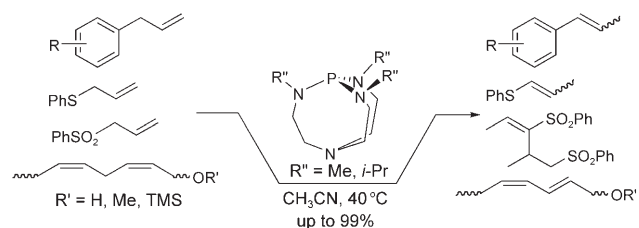


- 111** Proazaphosphatranes  $\text{P}(\text{RNCH}_2\text{CH}_2)_3\text{N}$  ( $\text{R} = \text{Me}, i\text{-Pr}$ )-Catalyzed Isomerization of Allylaromatics, Allyl Phenyl Sulfide, Allyl Phenyl Sulfone, and *bis*-Allylmethylene Double Bond-Containing Compounds

*Adv. Synth. Catal.* **2006**, 348, 111–117



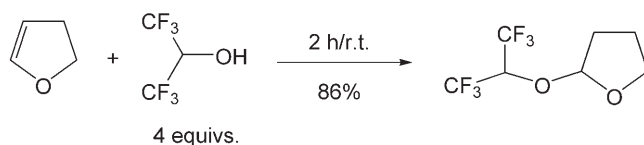
Zhengkun Yu,\* Shenggang Yan, Guangtao Zhang, Wei He\*, Liandi Wang, Yu Li, Fanlong Zeng



- 118** Self-Promoted Nucleophilic Addition of Hexafluoro-2-propanol to Vinyl Ethers

*Adv. Synth. Catal.* **2006**, 348, 118–124

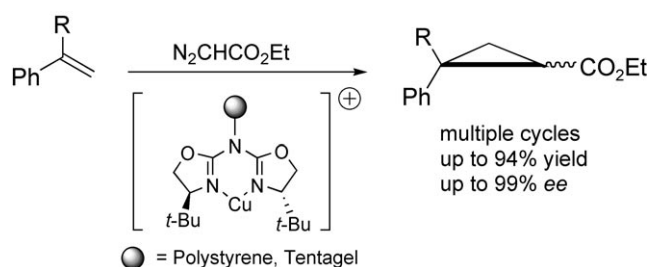
Andrea Di Salvo, Marc David, Benoît Crousse, Danièle Bonnet-Delpon\*



- 125** Synthesis of Polymer Bound Azabis(oxazoline) Ligands and their Application in Asymmetric Cyclopropanations

*Adv. Synth. Catal.* **2006**, 348, 125–132

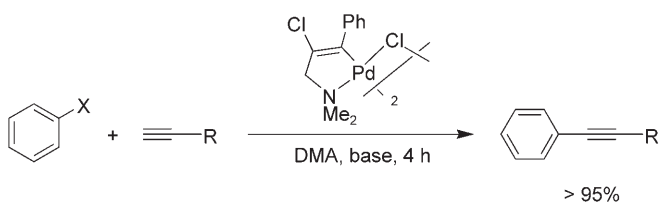
Heiko Werner, Clara I. Herreras, Michael Glos, Anja Gissibl, Jose M. Fraile, Ignacio Pérez, Jose A. Mayoral,\* Oliver Reiser\*



- 133** A Simple and Efficient Copper-Free Catalytic System Based on a Palladacycle for the Arylation of Alkynes

*Adv. Synth. Catal.* **2006**, 348, 133–141

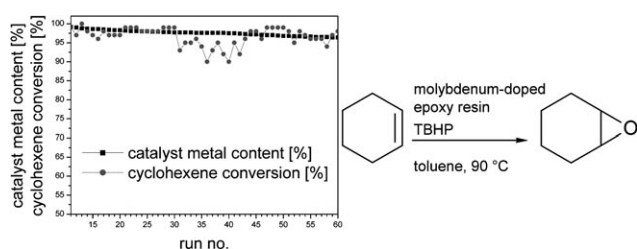
Crestina S. Consorti, Fabricio R. Flores, Frank Rominger, Jairton Dupont\*



# Metal-Doped Epoxy Resins —New Catalysts for the Epoxidation of Alkenes with High Long-Term Activities

*Adv. Synth. Catal.* **2006**, 348, 142–150

Ulrich Arnold,\* Wilhelm Habicht, Manfred Döring

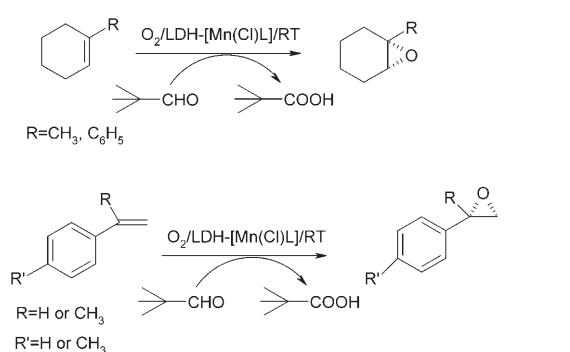


142

# Novel Chiral Sulphonato-Salen-Manganese(III)-Pillared Hydrotalcite Catalysts for the Asymmetric Epoxidation of Styrenes and Cyclic Alkenes

*Adv. Synth. Catal.* **2006**, 348, 151–158

Samiran Bhattacharjee, James A. Anderson\*

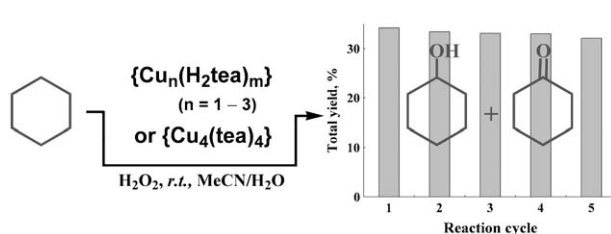


151

# Mild Peroxidative Oxidation of Cyclohexane Catalyzed by Mono-, Di-, Tri-, Tetra- and Polynuclear Copper Triethanolamine Complexes

*Adv. Synth. Catal.* **2006**, 348, 159–174

Alexander M. Kirillov, Maximilian N. Kopylovich, Marina V. Kirillova, Evgeny Yu. Karabach, Matti Haukka, M. Fátima C. Guedes da Silva, Armando J. L. Pombeiro\*

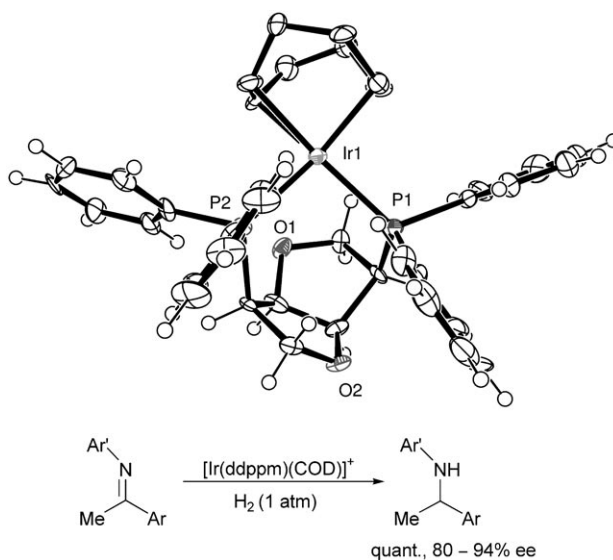


159

# Chiral Diphosphine ddppm-Iridium Complexes: Effective Asymmetric Imine Hydrogenations at Ambient Pressures

*Adv. Synth. Catal.* **2006**, 348, 175–183

Athanasia Dervisi,\* Cristina Carcedo, Li-ling Ooi



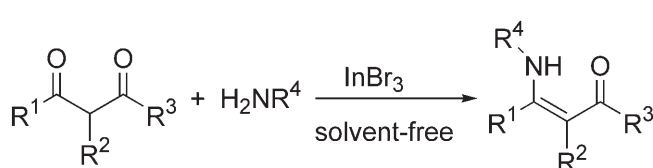
175

# A General and Efficient Method for the Preparation of β-Enamino Ketones and Esters Catalyzed by Indium Tribromide

*Adv. Synth. Catal.* **2006**, 348, 184–190



Zhan-Hui Zhang, Liang Yin, Yong-Mei Wang\*



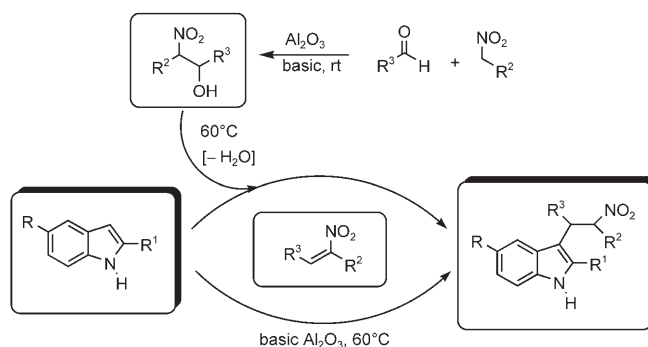
184

**191** Conjugate Addition of Indoles to Nitroalkenes Promoted by Basic Alumina in Solventless Conditions

*Adv. Synth. Catal.* **2006**, 348, 191–196



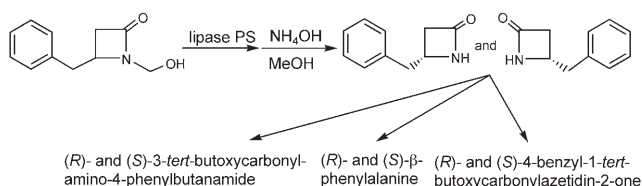
Roberto Ballini,\* Roberto Rabanedo Clemente, Alessandro Palmieri, Marino Petrini\*



**197** Lipase-Involved Strategy to the Enantiomers of 4-Benzyl- $\beta$ -Lactam as a Key Intermediate in the Preparation of  $\beta$ -Phenylalanine Derivatives

*Adv. Synth. Catal.* **2006**, 348, 197–205

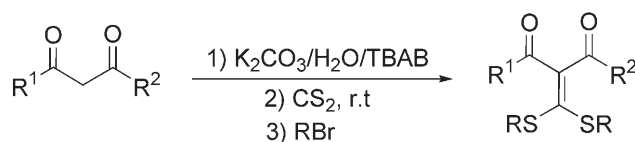
Xiang-Guo Li, Liisa T. Kanerva\*



**206** A Clean, Facile and Practical Synthesis of  $\alpha$ -Oxoketene S,S-Acetals in Water

*Adv. Synth. Catal.* **2006**, 348, 206–210

Yan Ouyang, Dewen Dong,\* Haifeng Yu, Yongjiu Liang, Qun Liu\*

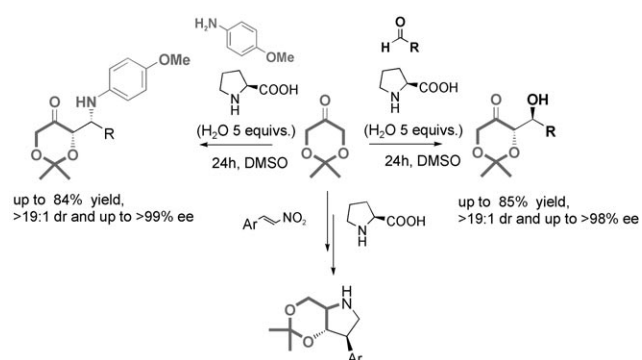


**211** Amino Acid-Catalyzed Asymmetric Carbohydrate Formation: Organocatalytic One-Step *De Novo* Synthesis of Keto and Amino Sugars

*Adv. Synth. Catal.* **2006**, 348, 211–222



Ismail Ibrahim, Weibiao Zou, Yongmei Xu, Armando Córdova\*

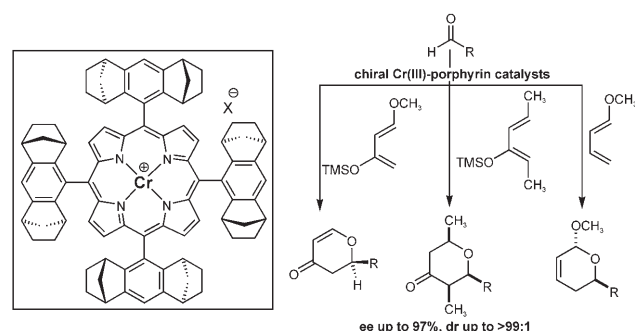


**223** Chiral Chromium(III) Porphyrins as Highly Enantioselective Catalysts for Hetero-Diels–Alder Reactions Between Aldehydes and Dienes

*Adv. Synth. Catal.* **2006**, 348, 223–228



Albrecht Berkessel,\* Erkan Ertürk, Cécile Laporte



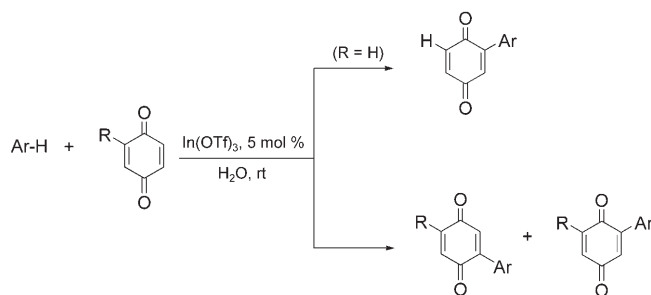


Synthesis of Aryl-Substituted 1,4-Benzoquinone *via* Water-Promoted and  $\text{In}(\text{OTf})_3$ -Catalyzed *in situ* Conjugate Addition-Dehydrogenation of Aromatic Compounds to 1,4-Benzoquinone in Water

*Adv. Synth. Catal.* **2006**, 348, 229–235



Hai-Bo Zhang, Li Liu, Yong-Jun Chen, Dong Wang,\*  
Chao-Jun Li\*



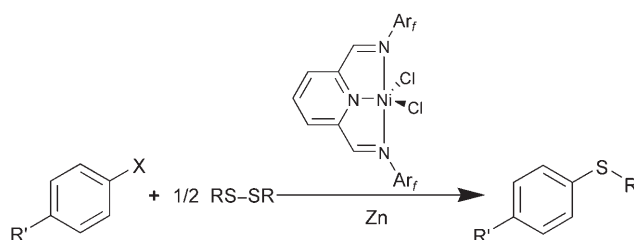
229

Alkyl- and Arylthiolation of Aryl Halides Catalyzed by Fluorinated Bis-Imino-Nickel NNN Pincer Complexes  $[\text{NiCl}_2\{\text{C}_5\text{H}_3\text{N}-2,6-(\text{CHNAr}_f)_2\}]$

*Adv. Synth. Catal.* **2006**, 348, 236–242



Oscar Baldovino-Pantaleón, Simón Hernández-Ortega,  
David Morales-Morales\*



236

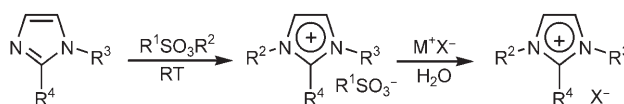
## UPDATES

A Simple and Practical Method for the Preparation and Purity Determination of Halide-Free Imidazolium Ionic Liquids

*Adv. Synth. Catal.* **2006**, 348, 243–248



Claudia C. Cassol, Günter Ebeling, Bauer Ferrera,  
Jairton Dupont\*

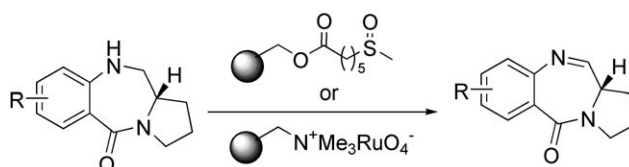


243

Conversion of Amines to Imines Employing Polymer-Supported Sulfoxide (PSS) and Polymer-Supported Perruthenate (PSP): Synthesis of Pyrrolo[2,1-c][1,4]-benzodiazepines

*Adv. Synth. Catal.* **2006**, 348, 249–254

Ahmed Kamal,\* V. Devaiah, K. Laxma Reddy,  
N. Shankaraiah

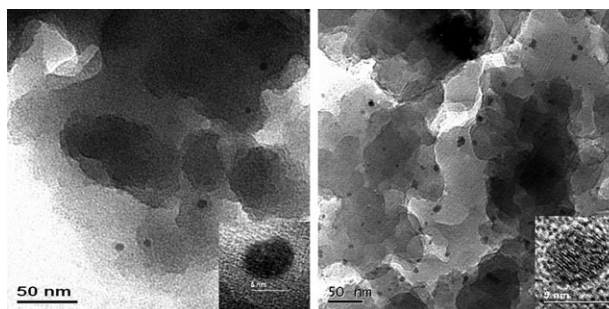


249

Functional Resins as Hydrophilic Supports for Nanoclustered Pd(0) and Pd(0)-Au(0) Catalysts Designed for the Direct Synthesis of Hydrogen Peroxide

*Adv. Synth. Catal.* **2006**, 348, 255–259

Claudio Burato, Paolo Centomo, Maurizio Rizzoli, Andrea Biffis, Sandro Campestrini,\* Benedetto Corain\*



255



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\*Author to whom correspondence should be addressed.