

## 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. Achieving chemical reactions that are highly selective, economical, safe, resource- and energy-efficient, and environmentally benign is a primary challenge to chemistry in this century. Realizing this goal will demand the highest level of scientific creativity, insight and understanding in a combined effort by academic, government and industrial chemists and engineers.

*Advanced Synthesis & Catalysis* promotes that process by publishing high-impact research results reporting the development and application of efficient synthetic methodologies and strategies for organic targets that range from pharmaceuticals to organic materials. Homogeneous catalysis, biocatalysis, organocatalysis and heterogeneous catalysis directed towards organic synthesis are playing an ever increasing role in achieving synthetic efficiency. Asymmetric catalysis remains a topic of central importance. In addition, *Advanced Synthesis & Catalysis* includes other areas that are making a contribution to green synthesis, such as synthesis design, reaction techniques, flow chemistry and continuous processing, multi-phase catalysis, green solvents, catalyst immobilization and recycling, separation science and process development.

Practical processes involve development of effective integrated strategies, from an elegant synthetic route based on mechanistic and structural insights at the molecular level through to process optimization at larger scales. These endeavors often entail a multidisciplinary approach that spans the broad fields chemistry, biology, and engineering and involve contributions from academic, government, and industrial laboratories.

The unique focus of *Advanced Synthesis & Catalysis* has rapidly made it a leading organic chemistry and catalysis journal. The goal of *Advanced Synthesis & Catalysis* is to help inspire 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)

New Impact Factor  
**4.977**  
N° 1 in Organic Chemistry  
for the 4<sup>th</sup> straight year

2008, 350, 14 + 15, Pages 2137–2452

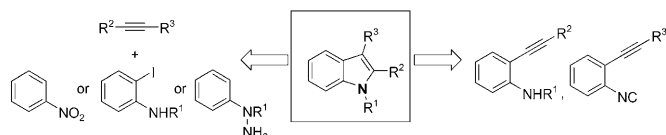
Issue 13/2008 was published online on  
August 29, 2008

## REVIEW

### Catalytic Synthesis of Indoles from Alkynes

*Adv. Synth. Catal.* **2008**, 350, 2153–2167

Karolin Krüger (née Alex), Annegret Tillack,  
Matthias Beller\*




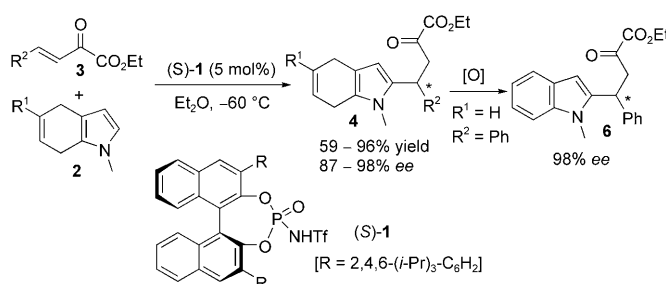
2153

## COMMUNICATIONS

### Highly Enantioselective Friedel–Crafts Reaction of 4,7-Dihydroindoles with $\beta,\gamma$ -Unsaturated $\alpha$ -Keto Esters by Chiral Brønsted Acids

*Adv. Synth. Catal.* **2008**, 350, 2169–2173

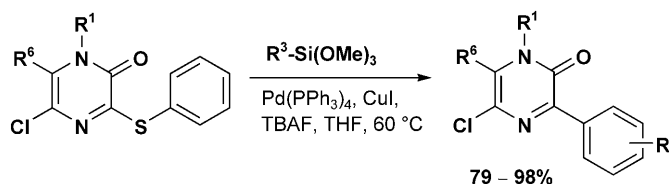
 Mi Zeng, Qiang Kang, Qing-Li He, Shu-Li You\*



2169

- 2174** Palladium-Catalyzed Desulfurative C–C Cross-Coupling Reaction of (Hetero)Aryl Thioesters and Thioethers with Arylsiloxanes

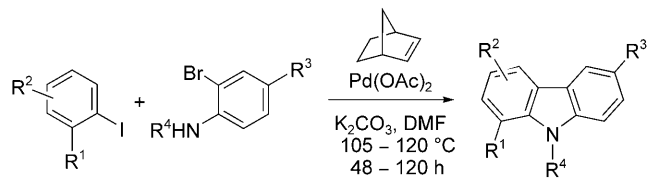
*Adv. Synth. Catal.* **2008**, 350, 2174–2178



Vaibhav Pravinchandra Mehta, Anuj Sharma, Erik Van der Eycken\*

- 2179** A Direct Palladium-Catalyzed Route to Selectively Substituted Carbazoles through Sequential C–C and C–N Bond Formation: Synthesis of Carbazomycin A

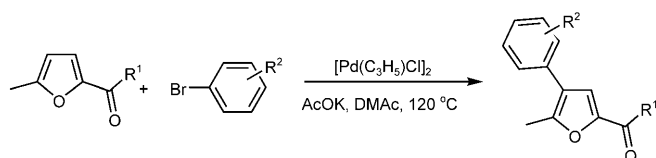
*Adv. Synth. Catal.* **2008**, 350, 2179–2182



Nicola Della Ca', Giovanni Sassi, Marta Catellani\*

- 2183** Palladium-Catalyzed Direct C-4 Arylation of 2,5-Disubstituted Furans with Aryl Bromides

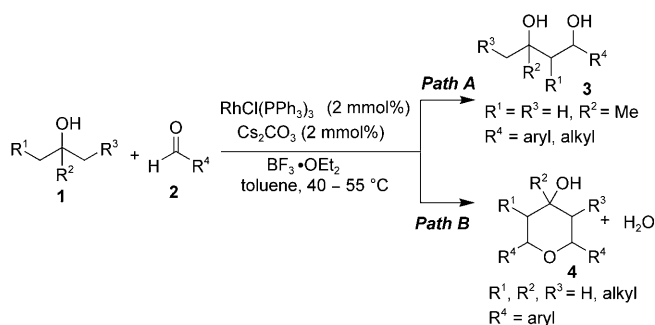
*Adv. Synth. Catal.* **2008**, 350, 2183–2188



Aditya L. Gottumukkala, Henri Doucet\*

- 2189** A Direct C–C Cross-Coupling of Alcohols at the  $\beta$ -Position with Aldehydes under Co-Promotion of Tris(triphenylphosphine)rhodium Chloride/Boron Trifluoride Etherate

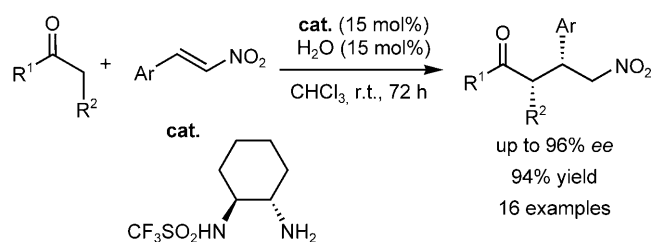
*Adv. Synth. Catal.* **2008**, 350, 2189–2193



Shu-Yu Zhang, Yong-Qiang Tu,\* Chun-An Fan, Yi-Jun Jiang, Lei Shi, Ke Cao

- 2194** A Novel Bifunctional Sulfonamide Primary Amine-Catalyzed Enantioselective Conjugate Addition of Ketones to Nitroolefins

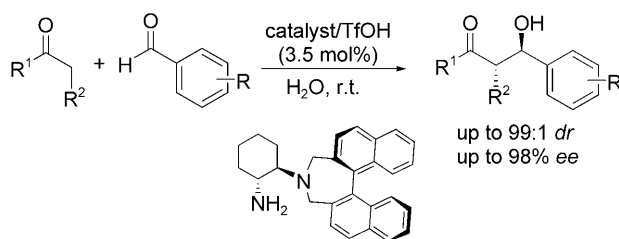
*Adv. Synth. Catal.* **2008**, 350, 2194–2198



Fei Xue, Shilei Zhang,\* Wenhui Duan,\* Wei Wang\*

- 2199** Highly Diastereo- and Enantioselective Direct Aldol Reactions Promoted by Water-Compatible Organocatalysts Bearing Central and Axial Chiral Elements

*Adv. Synth. Catal.* **2008**, 350, 2199–2204

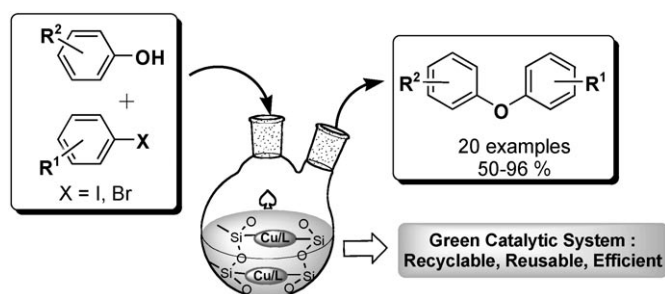


Fang-Zhi Peng, Zhi-Hui Shao,\* Xue-Wei Pu, Hong-Bin Zhang

# Efficient and Versatile Sol-Gel Immobilized Copper Catalyst for Ullmann Arylation of Phenols

*Adv. Synth. Catal.* **2008**, 350, 2205–2208


 Sofia Benyahya, Florian Monnier,\* Marc Taillefer\*  
Michel Wong Chi Man,\* Catherine Bied, Fouad Ouazzani

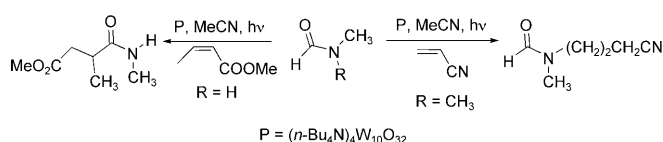


2205

# Tetrabutylammonium Decatungstate (Chemo)selective Photocatalyzed, Radical C–H Functionalization in Amides

*Adv. Synth. Catal.* **2008**, 350, 2209–2214


 Simone Angioni, Davide Ravelli, Daniele Emma,  
Daniele Dondi, Maurizio Fagnoni,\* Angelo Albini

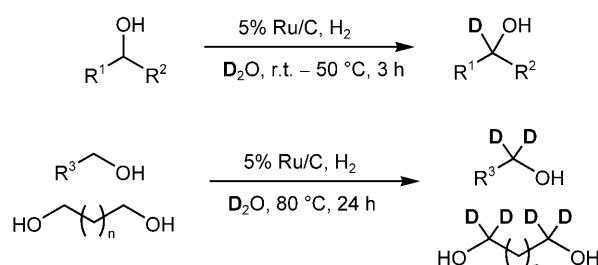


2209

# A Convenient and Effective Method for the Regioselective Deuteration of Alcohols

*Adv. Synth. Catal.* **2008**, 350, 2215–2218


 Tomohiro Maegawa, Yuta Fujiwara, Yuya Inagaki,  
Yasunari Monguchi, Hironao Sajiki\*

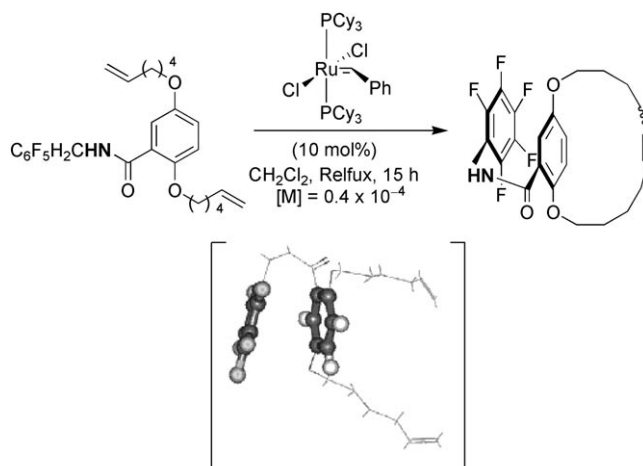


2215

# Exploiting Non-Covalent Interactions in Synthesis: Macrocyclization Employing Amide-Based Auxiliaries

*Adv. Synth. Catal.* **2008**, 350, 2219–2225


 Yassir El-Azizi, Joseph E. Zakarian, Lisa Boullierand,  
Andreea R. Schmitzer, Shawn K. Collins\*

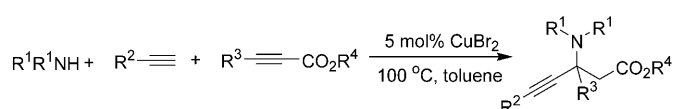


2219

# Efficient Synthesis of $\gamma,\delta$ -Alkynyl- $\beta$ -amino Acid Derivatives by a New Copper-Catalyzed Amine-Alkyne-Alkyne Addition Reaction

*Adv. Synth. Catal.* **2008**, 350, 2226–2230

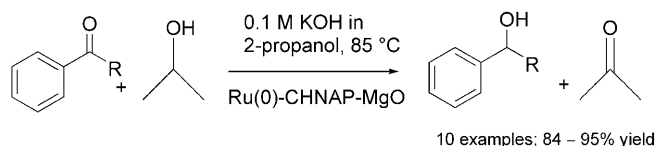
 Lei Zhou, Huan-feng Jiang,\* Chao-Jun Li\*



2226

- 2231** Transfer Hydrogenation of Carbonyl Compounds Catalyzed by Ruthenium Nanoparticles Stabilized on Nanocrystalline Magnesium Oxide by Ionic Liquids

*Adv. Synth. Catal.* **2008**, 350, 2231–2235



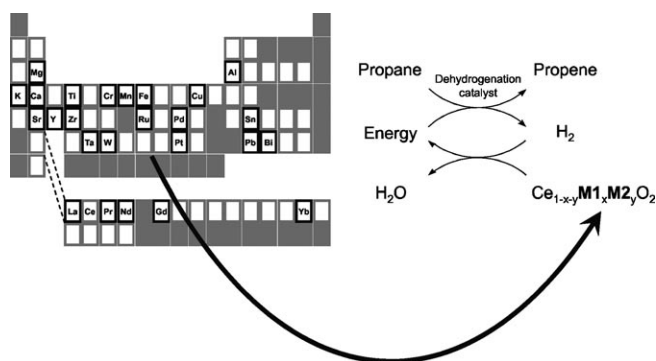
M. Lakshmi Kantam,\* R. Sudarshan Reddy, Ujjwal Pal, B. Sreedhar, S. Bhargava

## FULL PAPERS

- 2237** Selective Hydrogen Oxidation Catalysts *via* Genetic Algorithms

*Adv. Synth. Catal.* **2008**, 350, 2237–2249

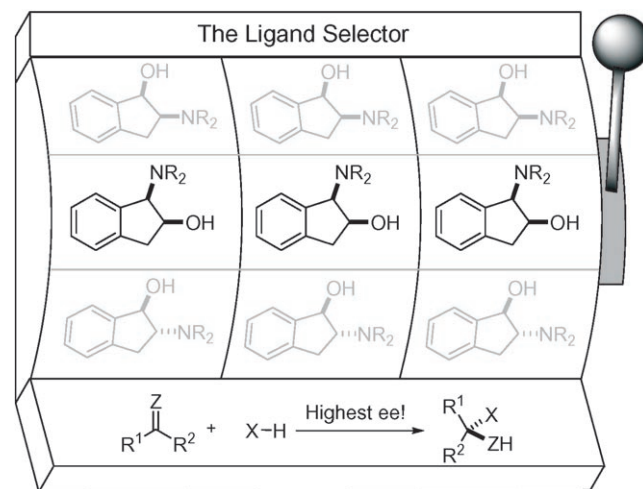
Jurriaan Beckers,\* Frédéric Clerc, Jan Hendrik Blank, Gadi Rothenberg\*



- 2250** Exploring Structural Diversity in Ligand Design: The Aminoindanol Case

*Adv. Synth. Catal.* **2008**, 350, 2250–2260

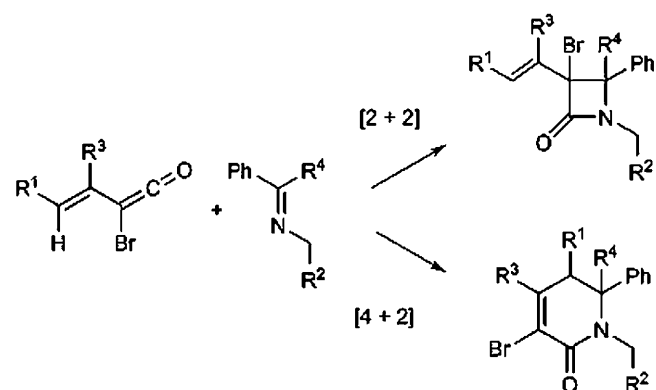
Sergi Rodríguez-Esrich, Lluís Solà, Ciril Jimeno, Carles Rodríguez-Esrich, Miquel A. Pericàs\*



- 2261** The Cycloaddition Reaction Between  $\alpha$ -Bromo Vinylketenes and Imines: A Combined Experimental and Theoretical Study


*Adv. Synth. Catal.* **2008**, 350, 2261–2273

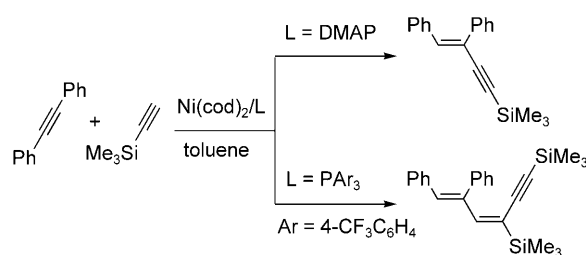
Fides Benfatti, Andrea Bottoni,\* Giuliana Cardillo, Serena Fabbroni, Luca Gentilucci, Marco Stenta,\* Alessandra Tolomelli



# Ligand-Controlled Cross-Dimerization and -Trimerization of Alkynes under Nickel Catalysis

*Adv. Synth. Catal.* **2008**, 350, 2274–2278


 Naoto Matsuyama, Hayato Tsurugi, Tetsuya Satoh, Masahiro Miura\*

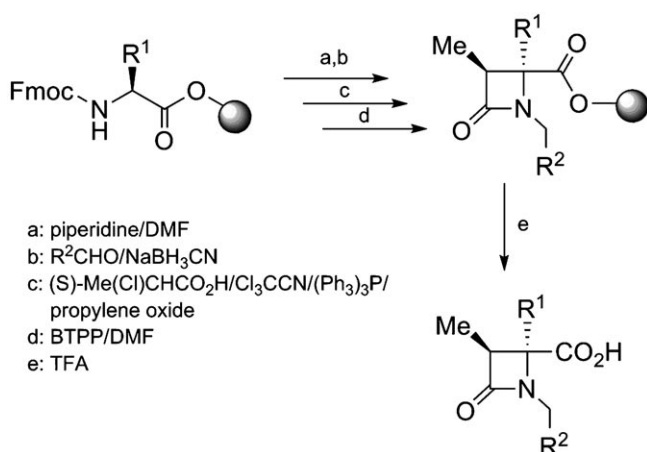


2274

# Simple, Highly Enantioselective Access to Quaternary 1,3,4,4-Tetrasubstituted $\beta$ -Lactams from Amino Acids: A Solid-Phase Approach

*Adv. Synth. Catal.* **2008**, 350, 2279–2285

 Paula Pérez-Faginas, M. Teresa Aranda, Laoise Coady, M. Teresa García-López, Rosario González-Muñiz\*

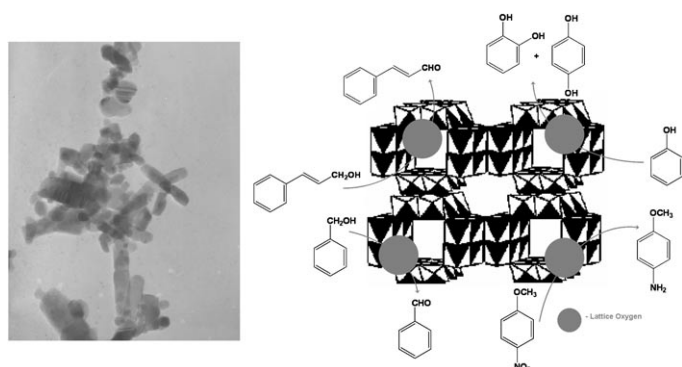


2279

# Synthesis of a Novel Redox Material UDCaT-3: An Efficient and Versatile Catalyst for Selective Oxidation, Hydroxylation and Hydrogenation Reactions

*Adv. Synth. Catal.* **2008**, 350, 2286–2294


Ganapati D. Yadav,\* Haresh G. Manyar

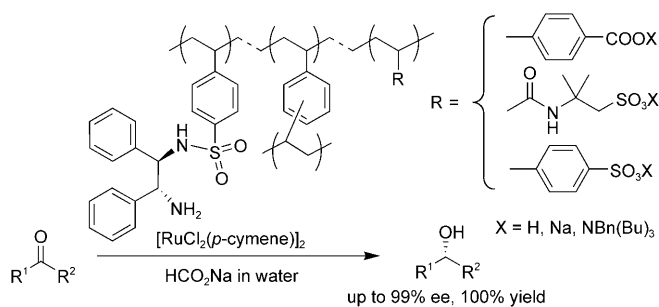


2286

# Asymmetric Transfer Hydrogenation of Aromatic Ketones in Water using a Polymer-Supported Chiral Catalyst Containing a Hydrophilic Pendant Group

*Adv. Synth. Catal.* **2008**, 350, 2295–2304

 Yukihiro Arakawa, Atsuko Chiba, Naoki Haraguchi, Shinichi Itsuno\*

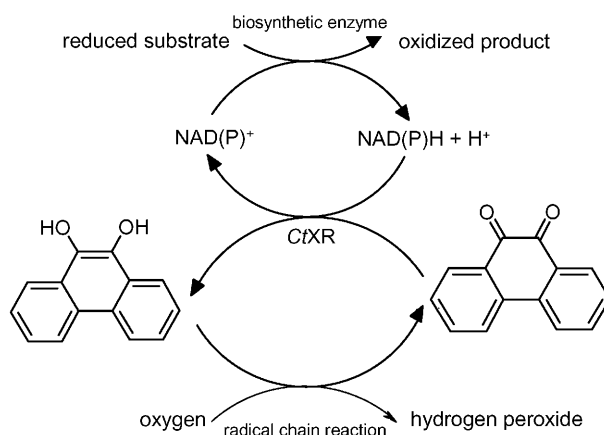


2295

- 2305** Novel Chemo-Enzymatic Mimic of Hydrogen Peroxide-Forming NAD(P)H Oxidase for Efficient Regeneration of NAD and NADP

*Adv. Synth. Catal.* **2008**, 350, 2305–2312

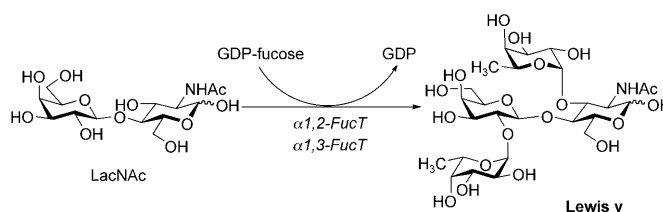
Simone L. Pival, Mario Klimacek, Bernd Nidetzky\*



- 2313** Characterization of *Helicobacter pylori*  $\alpha$ 1,2-Fucosyltransferase for Enzymatic Synthesis of Tumor-Associated Antigens

*Adv. Synth. Catal.* **2008**, 350, 2313–2321

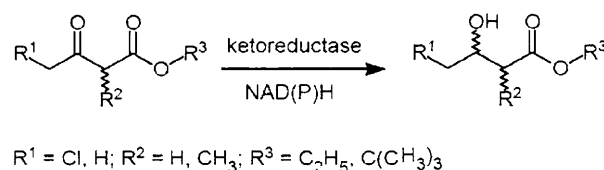
Daniel B. Stein, Yu-Nong Lin, Chun-Hung Lin\*



- 2322** Asymmetric Carbonyl Reductions with Microbial Ketoreductases

*Adv. Synth. Catal.* **2008**, 350, 2322–2328

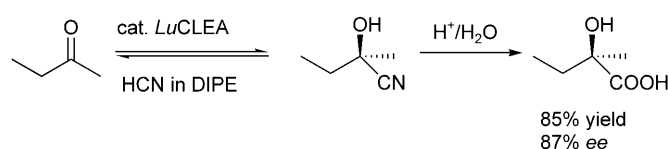
Menno J. Sorgedraeger, Fred van Rantwijk, Gjalte W. Huisman, Roger A. Sheldon\*



- 2329** *Linum usitatissimum* Hydroxynitrile Lyase Cross-Linked Enzyme Aggregates: A Recyclable Enantioselective Catalyst

*Adv. Synth. Catal.* **2008**, 350, 2329–2338

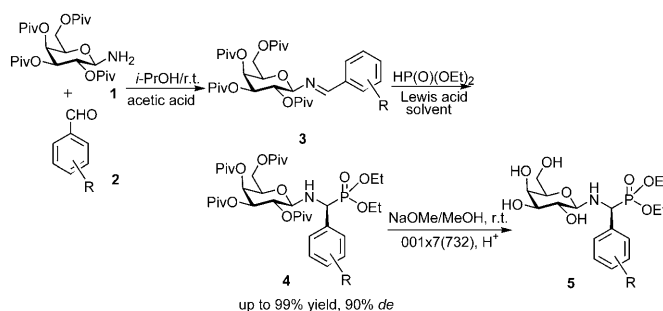
Fabien L. Cabirol, Pei Loo Tan, Benson Tay, Shiryn Cheng, Ulf Hanefeld, Roger A. Sheldon\*



- 2339** Glycosylation-Induced and Lewis Acid-Catalyzed Asymmetric Synthesis of  $\beta$ -N-Glycosidically Linked  $\alpha$ -Aminophosphonic Acids Derivatives


*Adv. Synth. Catal.* **2008**, 350, 2339–2344

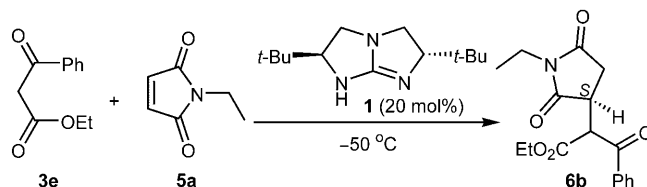
Yadan Wang, Fei Wang, Yangyun Wang, Zhiwei Miao,\* Ruyi Chen



# Rate Acceleration of Triethylamine-Mediated Guanidine-Catalyzed Enantioselective Michael Reaction

*Adv. Synth. Catal.* **2008**, 350, 2345–2351

 Zhiyong Jiang, Weiping Ye, Yuanyong Yang, Choon-Hong Tan\*




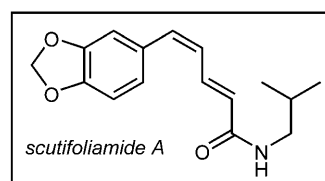
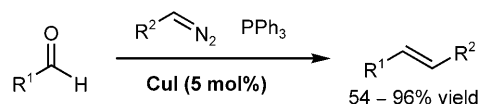
Toluene as solvent, 60 h, yield 99%, 88% ee  
Et<sub>3</sub>N as solvent, 5 min, yield 99%, 93% ee  
Et<sub>3</sub>N as solvent, without catalyst 1, 5 min, yield 80%

2345

# Diazo Reagents in Copper(I)-Catalyzed Olefination of Aldehydes

*Adv. Synth. Catal.* **2008**, 350, 2352–2358


 Hélène Lebel,\* Michaël Davi

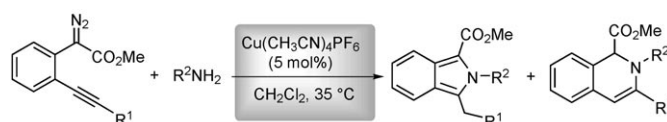


2352

# Sequential Copper(I)-Catalyzed Reaction of Amines with o-Acetylenyl-Substituted Phenyl diazoacetates

*Adv. Synth. Catal.* **2008**, 350, 2359–2364


 Cheng Peng, Jiajia Cheng, Jianbo Wang\*

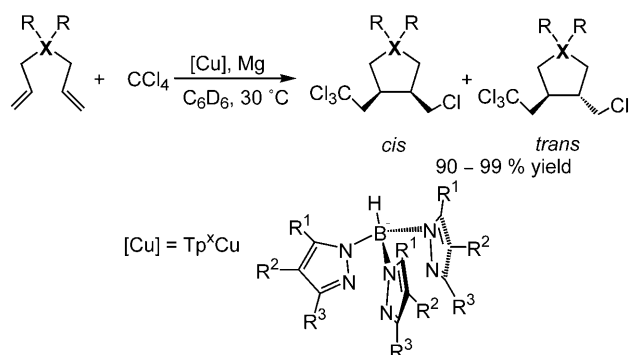


2359

# Copper-Catalyzed Synthesis of 1,2-Disubstituted Cyclopentanes from 1,6-Dienes by Ring-Closing Kharasch Addition of Carbon Tetrachloride

*Adv. Synth. Catal.* **2008**, 350, 2365–2372

 José María Muñoz-Molina, Tomás R. Belderráin,\* Pedro J. Pérez\*

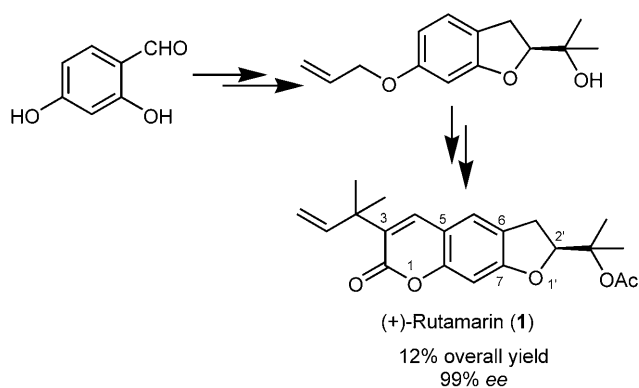


2365

# Total Synthesis of (+)-Rutamarin

*Adv. Synth. Catal.* **2008**, 350, 2373–2379

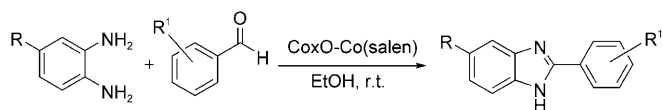
 Yi-Nan Zhang, Shi-Lei Zhang, Lei Ma, Yu Zhang, Xu Shen,\* Wei Wang,\* Li-Hong Hu\*



2373

- 2380** Reusable Cobalt(III)-Salen Complex Supported on Activated Carbon as an Efficient Heterogeneous Catalyst for Synthesis of 2-Arylbenzimidazole Derivatives

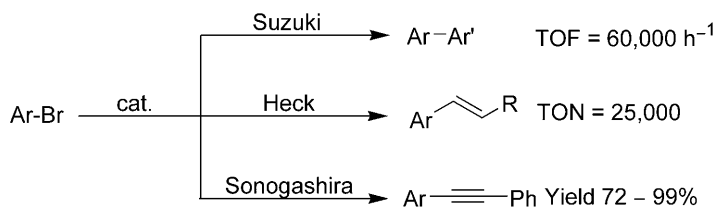
*Adv. Synth. Catal.* **2008**, 350, 2380–2390



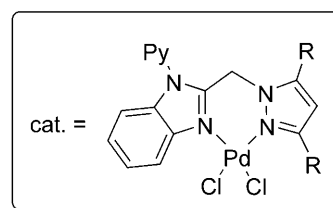
Hashem Sharghi,\* Mahdi Aberi, Mohammad Mahdi Doroodmand

- 2391** Benzimidazolium-Pyrazole-Palladium(II) Complexes: New and Efficient Catalysts for Suzuki, Heck and Sonogashira Reactions

*Adv. Synth. Catal.* **2008**, 350, 2391–2400



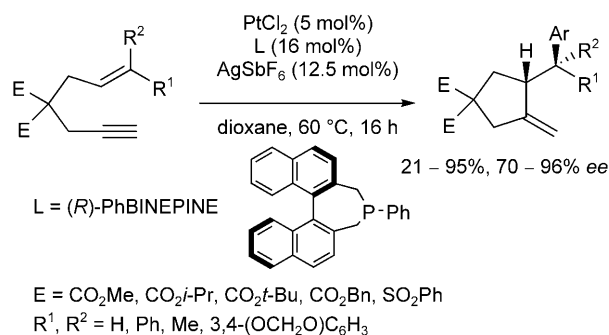
Fuwei Li, T. S. Andy Hor\*



- 2401** Enantioselective Platinum-Catalyzed Tandem Hydroarylation–Cycloisomerization of 1,6-Enynes

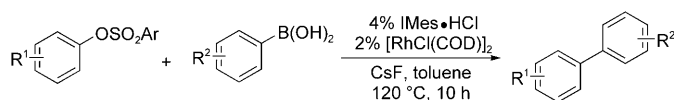
*Adv. Synth. Catal.* **2008**, 350, 2401–2408

Patrick Yves Toullec, Chung-Meng Chao, Qian Chen, Serafino Gladiali, Jean-Pierre Genêt, Véronique Michelet\*



- 2409** Rhodium/N-Heterocyclic Carbene-Catalyzed Cross-Couplings of Aryl Arenesulfonates with Arylboronic Acids

*Adv. Synth. Catal.* **2008**, 350, 2409–2413

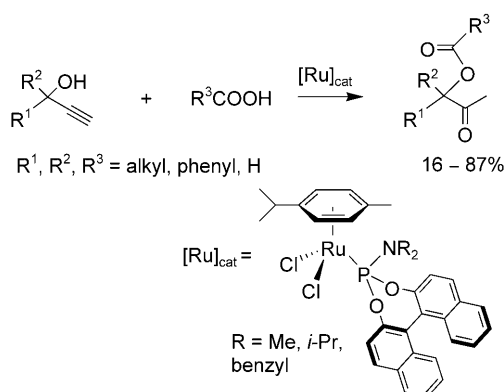


Liang Zhang, Jie Wu\*

- 2414** Conversion of Propargylic Alcohols to  $\beta$ -Oxo Esters Catalyzed by Novel Ruthenium-Phosphoramidite Complexes

*Adv. Synth. Catal.* **2008**, 350, 2414–2424


Stephen Costin, Nigam P. Rath, Eike B. Bauer\*

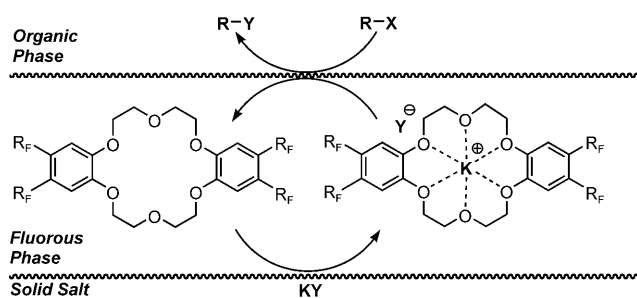




# Perfluorocarbon Soluble Crown Ethers as Phase Transfer Catalysts

*Adv. Synth. Catal.* **2008**, 350, 2425–2436

 Gianluca Pozzi,\* Silvio Quici, Richard H. Fish\*



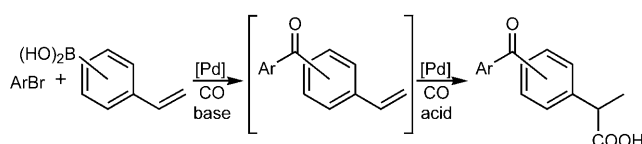
2425

## UPDATES

### An Efficient and Practical Sequential One-Pot Synthesis of Suprofen, Ketoprofen and Other 2-Arylpropionic Acids

*Adv. Synth. Catal.* **2008**, 350, 2437–2442

Helfried Neumann, Anne Brennfürher, Matthias Beller\*

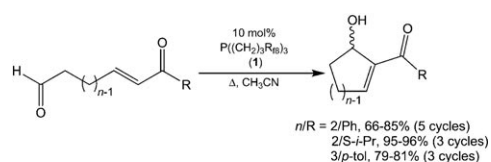


2437

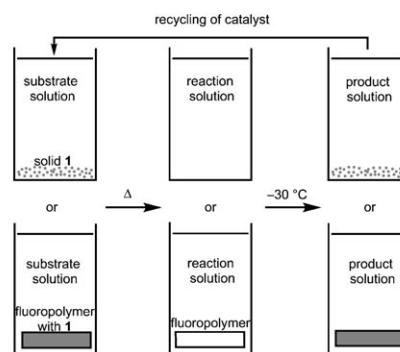
### Catalysis of Intramolecular Morita–Baylis–Hillman and Rauhut–Currier Reactions by Fluorous Phosphines; Facile Recovery by Liquid/Solid Organic/Fluorous Biphasic Protocols Involving Precipitation, Teflon® Tape, and Gore-Rastex® Fiber


*Adv. Synth. Catal.* **2008**, 350, 2443–2449

Florian O. Seidel, John A. Gladysz\*



2443



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

\*Author to whom correspondence should be addressed.