

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, 4 + 5, Pages 477–768

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DEDICATED CLUSTER – COMMENTARY

In Honor of Professor Masakatsu Shibasaki on the Occasion
of His 60th Birthday

491

Adv. Synth. Catal. **2007**, 349, 491–492

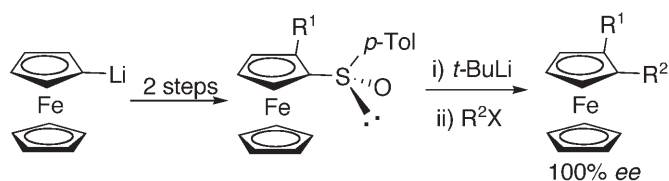
Shū Kobayashi*

DEDICATED CLUSTER – REVIEW

Metallocene Sulfoxides as Precursors of Metallocenes with
Planar Chirality

Adv. Synth. Catal. **2007**, 349, 493–507

Benoit Ferber, Henri B. Kagan*



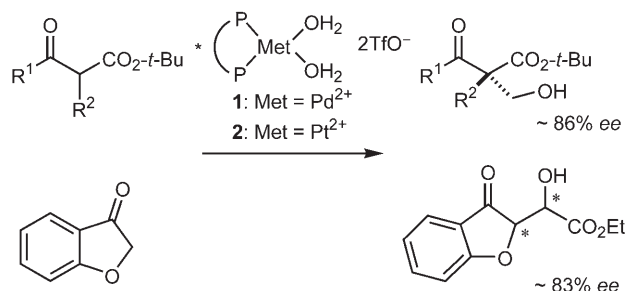
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Adv. Synth. Catal. **2007**, 349, 509–512

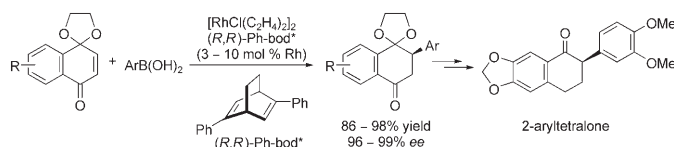
Isao Fukuchi, Yoshitaka Hamashima, Mikiko Sodeoka*



- 513** Asymmetric 1,4-Addition of Organoboron Reagents to Quinone Monoketals Catalyzed by a Chiral Diene/Rhodium Complex: A New Synthetic Route to Enantioenriched 2-Aryltetralones

Adv. Synth. Catal. **2007**, 349, 513–516

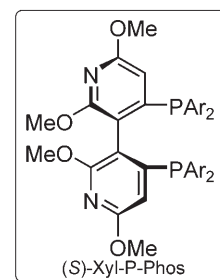
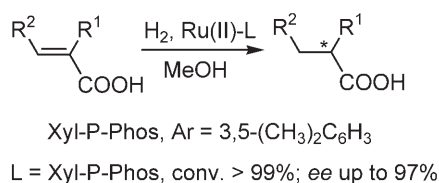
Norihito Tokunaga, Tamio Hayashi*



- 517** Highly Efficient Asymmetric Hydrogenation of α,β -Unsaturated Carboxylic Acids Catalyzed by Ruthenium(II)-Dipyridylphosphine Complexes

Adv. Synth. Catal. **2007**, 349, 517–520

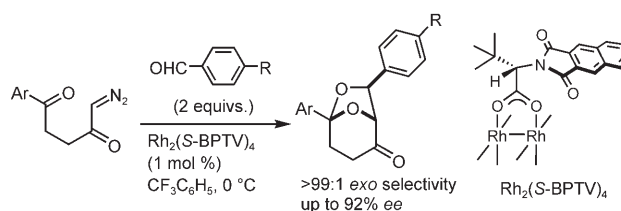
Liqin Qiu, Yue-Ming Li, Fuk Yee Kwong, Wing-Yiu Yu, Qing-Hua Fan, Albert S. C. Chan*



- 521** Catalytic Enantioselective Tandem Carbonyl Ylide Formation/1,3-Dipolar Cycloaddition Reactions of α -Diazo Ketones with Aromatic Aldehydes using Dirhodium(II) Tetrakis[*N*-benzene-fused-phthaloyl-(*S*)-valinate]

Adv. Synth. Catal. **2007**, 349, 521–526

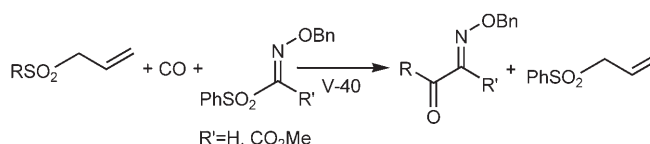
Hideyuki Tsutsui, Naoyuki Shimada, Takumi Abe, Masahiro Anada, Makoto Nakajima, Seiichi Nakamura, Hisanori Nambu, Shunichi Hashimoto*



- 527** Tin-Free Radical Carbonylation: Synthesis of Acylated Oxime Ethers Using Alkyl Allyl Sulfone Precursors, Carbon Monoxide, and Phenylsulfonyl Oxime Ether

Adv. Synth. Catal. **2007**, 349, 527–530

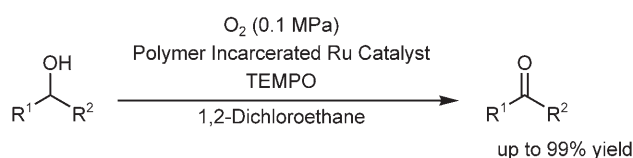
Sangmo Kim, Kyoung-Chan Lim, Sunggak Kim,* Ilhyong Ryu



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Adv. Synth. Catal. **2007**, 349, 531–534

Tsutomu Matsumoto, Masaharu Ueno, Jutta Kobayashi, Hiroyuki Miyamura, Yuichiro Mori, Shū Kobayashi*

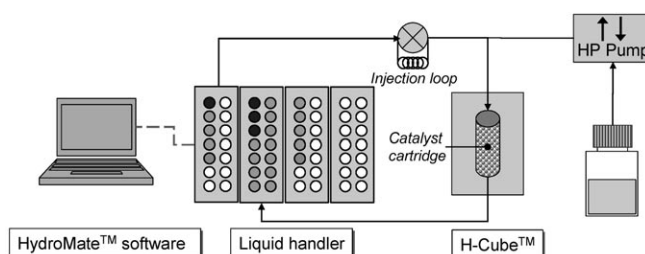


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Adv. Synth. Catal. **2007**, 349, 535–538

Kristian Rahbek Knudsen, John Holden, Steven V. Ley,* Mark Ladlow

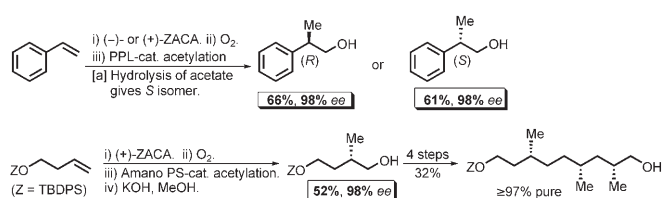


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Zirconium-Catalyzed Asymmetric Carboalumination of Alkenes: ZACA–Lipase-Catalyzed Acetylation Synergy

Adv. Synth. Catal. **2007**, 349, 539–545

Zhihong Huang, Ze Tan, Tibor Novak, Gangguo Zhu, Ei-ichi Negishi*

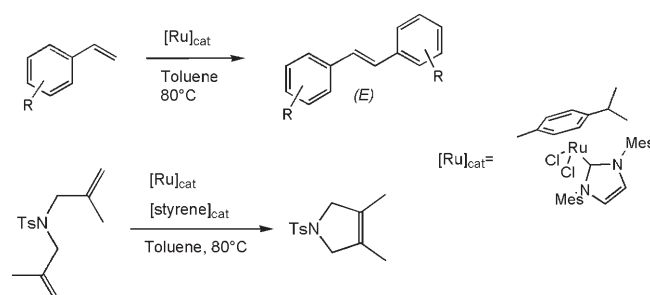


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Adv. Synth. Catal. **2007**, 349, 546–550

Cheikh Lo, Renan Cariou, Cédric Fischmeister,* Pierre H. Dixneuf*

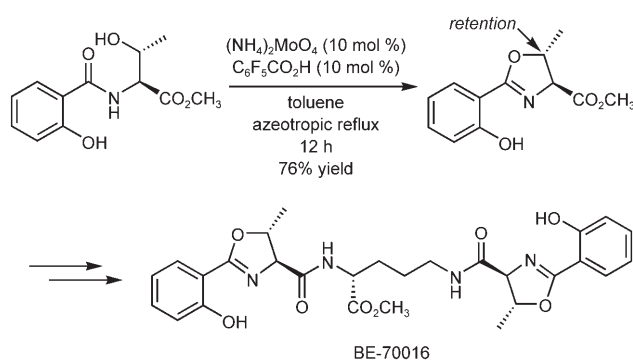


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Dehydrative Cyclization Catalyzed by the Combination of Molybdenum(VI) Oxides and Benzoic Acids: First Synthesis of the Antitumour Substance BE-70016

Adv. Synth. Catal. **2007**, 349, 551–555

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

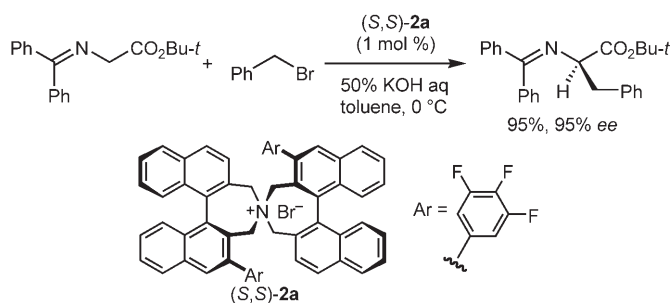


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- 556** Effects of Aromatic Substituents on Binaphthyl-Based Chiral Spiro-Type Ammonium Salts in Asymmetric Phase-Transfer Reactions

Adv. Synth. Catal. **2007**, 349, 556–560

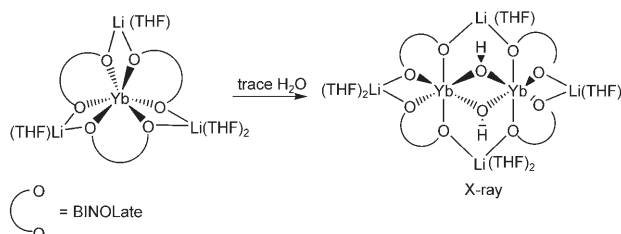
Taichi Kano, Quan Lan, Xisheng Wang, Keiji Maruoka*



- 561** Characterization of Dimeric and Tetrameric μ -Hydroxide Ytterbium(III) Binaphtholate Complexes

Adv. Synth. Catal. **2007**, 349, 561–565

Alfred J. Wooten, Luca Salvi, Patrick J. Carroll, Patrick J. Walsh*

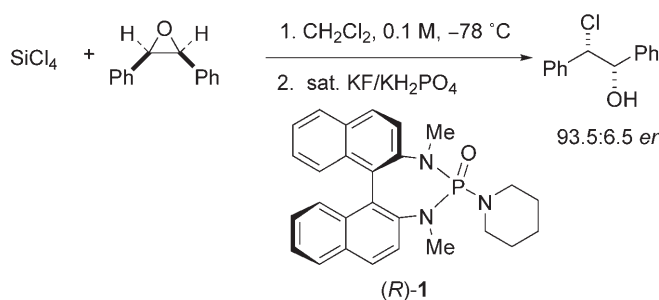


DEDICATED CLUSTER – FULL PAPERS

- 567** Enantioselective Ring Opening of Epoxides with Silicon Tetrachloride in the Presence of a Chiral Lewis Base: Mechanism Studies

Adv. Synth. Catal. **2007**, 349, 567–582

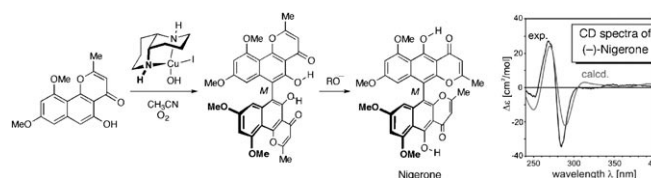
Scott E. Denmark,* Paul A. Barsanti, Gregory L. Beutner, Tyler W. Wilson



- 583** Asymmetric Total Synthesis of Nigerone and *ent*-Nigerone: Enantioselective Oxidative Biaryl Coupling of Highly Hindered Naphthols

Adv. Synth. Catal. **2007**, 349, 583–594

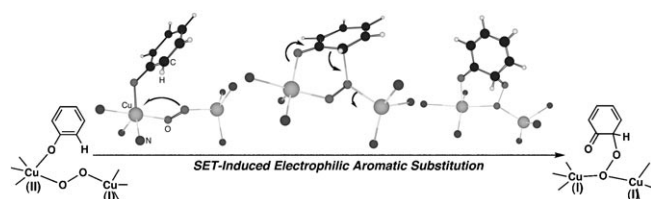
Marisa C. Kozlowski,* Elizabeth C. Dugan, Evan S. DiVirgilio, Katja Maksimenka, Gerhard Bringmann*



- 595** Theoretical Studies on *ortho*-Oxidation of Phenols with Dioxygen Mediated by Dicopper Complex: Hints for a Catalyst with the Phenolase Activity of Tyrosinase

Adv. Synth. Catal. **2007**, 349, 595–600

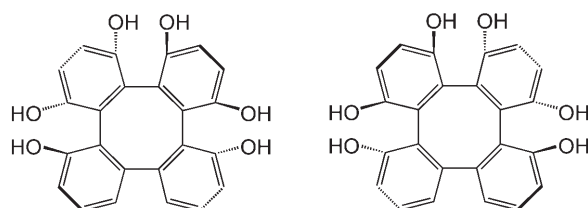
Hiroshi Naka,* Yoshinori Kondo, Shinya Usui, Yuichi Hashimoto, Masanobu Uchiyama*



- 601** Synthesis of Enantiopure (*S,R,S*)- and (*R,S,R*)-1,4,5,8,9,16-Hexahydroxytetraphenylenes

Adv. Synth. Catal. **2007**, 349, 601–608

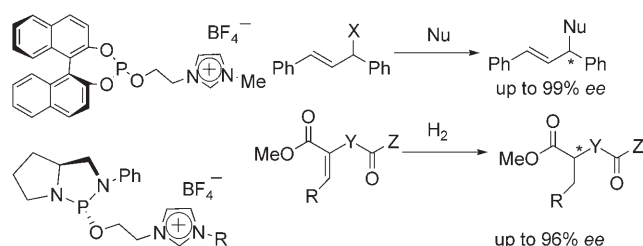
An-Hui Wu, Chun-Kit Hau, Henry N. C. Wong*



Chiral Ionic Phosphites and Diamidophosphites: A Novel Group of Efficient Ligands for Asymmetric Catalysis

Adv. Synth. Catal. **2007**, 349, 609–616

Konstantin N. Gavrilov,* Sergey E. Lyubimov,
Oleg G. Bondarev, Marina G. Maksimova,
Sergey V. Zheglov, Pavel V. Petrovskii, Vadim A. Davankov,
Manfred T. Reetz*

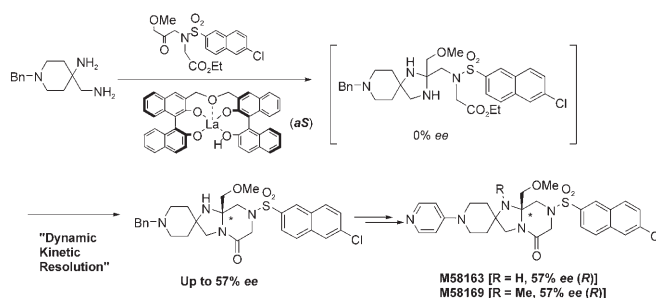


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Dynamic Kinetic Resolution for the Catalytic Asymmetric Total Synthesis of Antithrombotic Agents M58163 and M58169

Adv. Synth. Catal. **2007**, 349, 617–628

Fumihiko Saitoh,* Hidemitsu Nishida, Takafumi Mukaihira,
Kohsuke Aikawa, Koichi Mikami*

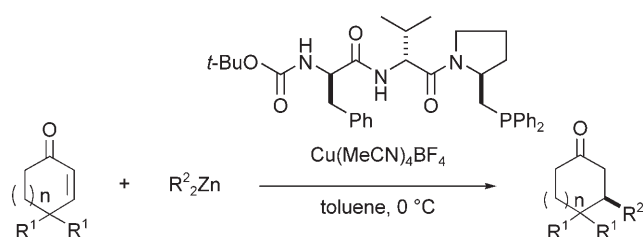


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Peptidic Amidomonophosphane Ligand for Copper-Catalyzed Asymmetric Conjugate Addition of Diorganozincs to Cycloalkenones

Adv. Synth. Catal. **2007**, 349, 629–635

Takahiro Soeta, Khalid Selim, Masami Kuriyama,
Kiyoshi Tomioka*

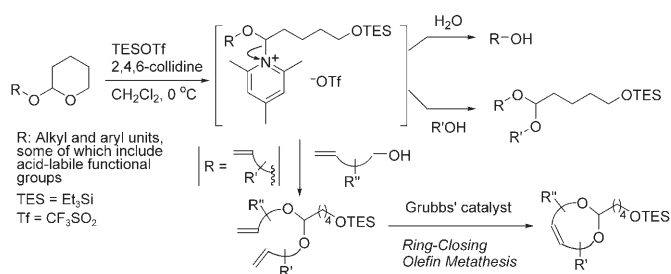


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Reaction of Tetrahydropyran Ethers with Triethylsilyl Trifluoromethanesulfonate–2,4,6-Collidine Combination: Speculation on the Intermediate, Efficient Deprotection, and Application to Efficient Ring-Closing Metathesis as a Tether

Adv. Synth. Catal. **2007**, 349, 636–646

Hiromichi Fujioka,* Takashi Okitsu, Takuya Ohnaka,
Yoshinari Sawama, Ozora Kubo, Kazuhisa Okamoto,
Yasuyuki Kita*

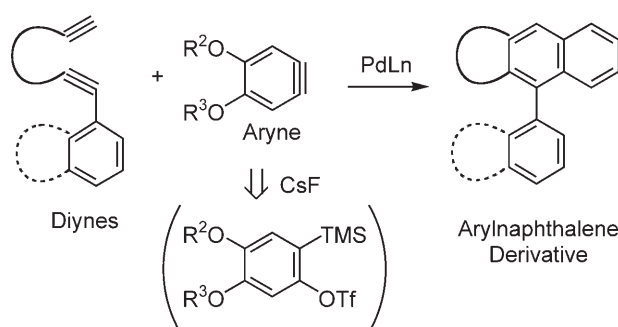


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Synthesis of Biaryls via Palladium-Catalyzed [2+2+2] Cocyclization of Arynes and Diynes: Application to the Synthesis of Arylnaphthalene Lignans

Adv. Synth. Catal. **2007**, 349, 647–661


Yoshihiro Sato,* Takayuki Tamura, Atsushi Kinbara,
Miwako Mori

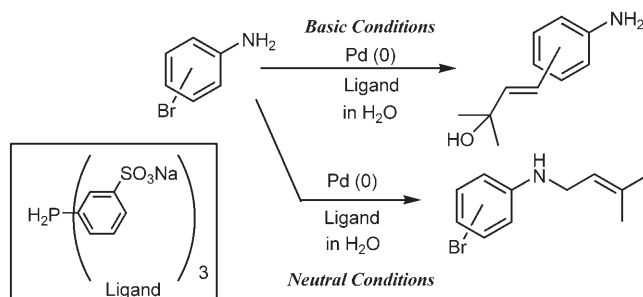


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- 662** Chemoselective Palladium-Catalyzed Reaction in Aqueous Media: Selectivity in the Reaction of Haloanilines with 1,1-Dimethylallyl Alcohol


Adv. Synth. Catal. **2007**, 349, 662–668

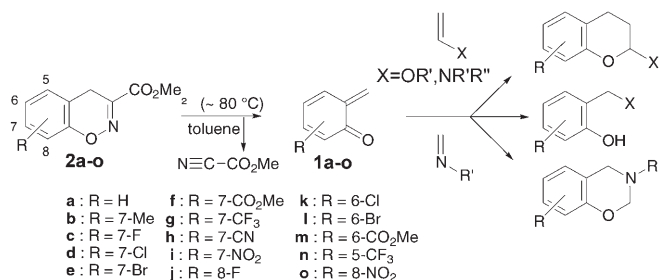
 Yuusaku Yokoyama,* Noriko Takagi, Hidemasa Hikawa, Satoru Kaneko, Natsume Tsubaki, Hiroaki Okuno



- 669** Generation and Application of *o*-Quinone Methides Bearing Various Substituents on the Benzene Ring

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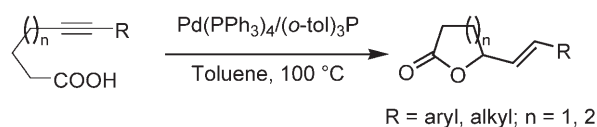
 Hiromichi Sugimoto, Satoshi Nakamura, Tomohiko Ohwada*



- 680** Suppression of β -Hydride Elimination in the Intramolecular Hydrocarboxylation of Alkynes leading to the Formation of Lactones

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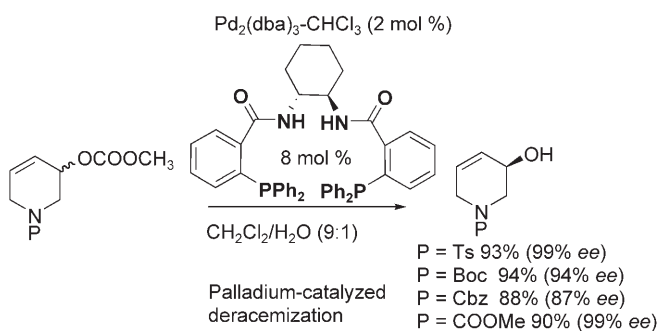
 Zhibao Huo, Nitin T. Patil, Tienan Jin, Nirmal K. Pahadi, Yoshinori Yamamoto*



- 685** A New Preparation of Homochiral *N*-Protected 5-Hydroxy-3-piperidenes, Promising Chiral Building Blocks, by Palladium-Catalyzed Deracemization of Their Alkyl Carbonates

Adv. Synth. Catal. **2007**, 349, 685–693

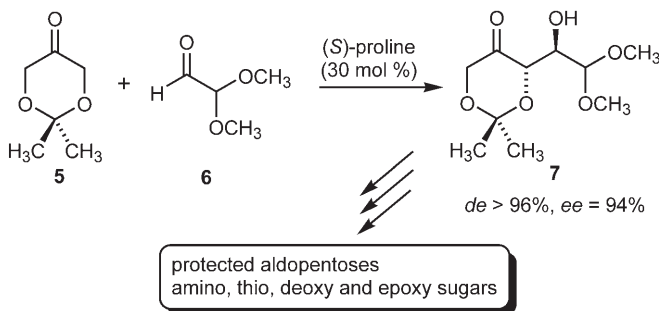
Hiroki Takahata,* Yumiko Suto, Erina Kato, Yuichi Yoshimura, Hidekazu Ouchi



- 694** A Direct Organocatalytic Entry to Selectively Protected Aldopentoses and Derivatives

Adv. Synth. Catal. **2007**, 349, 694–702

Christoph Grondal, Dieter Enders*

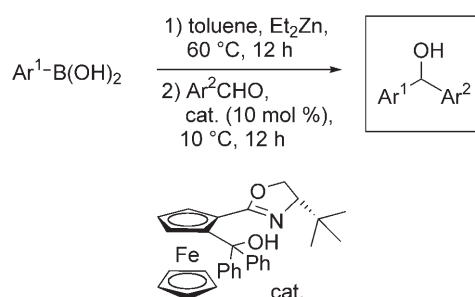


DEDICATED CLUSTER – UPDATES

Diarylmethanols by Catalyzed Asymmetric Aryl Transfer Reactions onto Aldehydes Using Boronic Acids as Aryl Source

Adv. Synth. Catal. **2007**, 349, 703–708

Frank Schmidt, Jens Rudolph, Carsten Bolm*

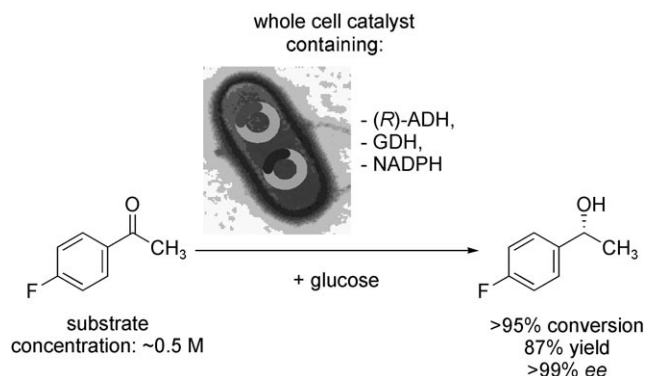


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Enantioselective Reduction of 4-Fluoroacetophenone at High Substrate Concentration using a Tailor-Made Recombinant Whole-Cell Catalyst

Adv. Synth. Catal. **2007**, 349, 709–712

Harald Gröger,* Claudia Rollmann, Françoise Chamouleau, Isabelle Sebastien, Oliver May, Wolfgang Wienand, Karlheinz Drauz



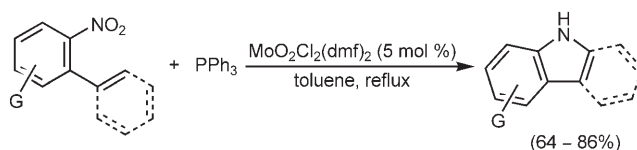
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COMMUNICATION

Dioxomolybdenum(VI)-Catalyzed Reductive Cyclization of Nitroaromatics. Synthesis of Carbazoles and Indoles

Adv. Synth. Catal. **2007**, 349, 713–718

Roberto Sanz,* Jaime Escribano, María R. Pedrosa, Rafael Aguado, Francisco J. Arnáiz*



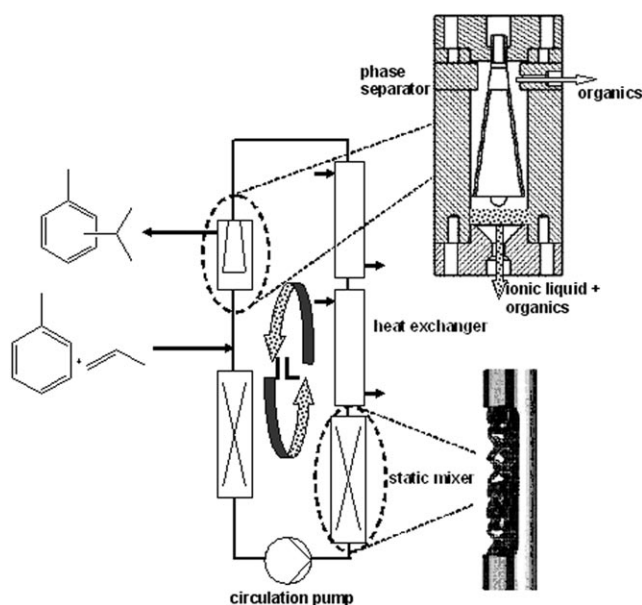
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FULL PAPERS

Continuous, Ionic Liquid-Catalysed Propylation of Toluene in a Liquid-Liquid Biphasic Reaction Mode using a Loop Reactor Concept

Adv. Synth. Catal. **2007**, 349, 719–726

Viktor Ladnak, Norbert Hofmann, Nicole Brausch, Peter Wasserscheid*

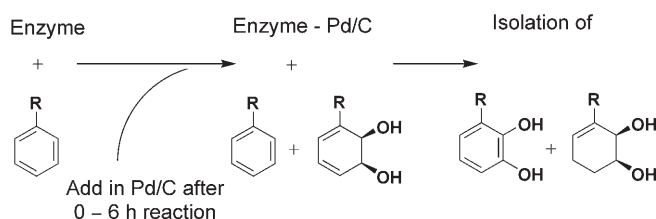


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- 727** A Comparative Study of the Synthesis of 3-Substituted Catechols using an Enzymatic and a Chemoenzymatic Method

Adv. Synth. Catal. **2007**, 349, 727–739

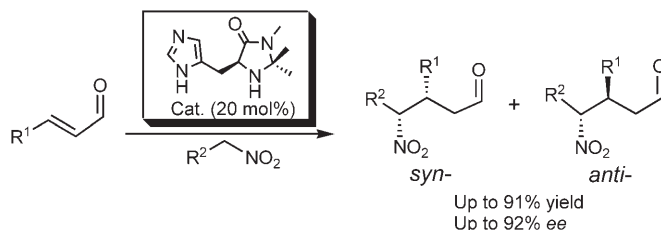
V. Berberian, C. C. R. Allen, N. D. Sharma, D. R. Boyd,* and C. Hardacre*



- 740** A New Imidazole-Containing Imidazolidinone Catalyst for Organocatalyzed Asymmetric Conjugate Addition of Nitroalkanes to Aldehydes

Adv. Synth. Catal. **2007**, 349, 740–748

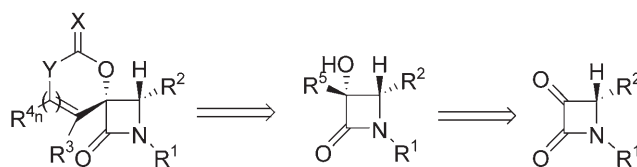
Leila Hojabri, Antti Hartikka, Firouz Matloubi Moghaddam, Per I. Arvidsson*



- 749** Diversity-Oriented Preparation of Enantiopure Spirocyclic 2-Azetidinones from α -Oxo- β -lactams through Barbier-Type Reactions followed by Metal-Catalyzed Cyclizations

Adv. Synth. Catal. **2007**, 349, 749–758

Benito Alcaide,* Pedro Almendros,* Teresa Martínez del Campo, Raquel Rodríguez-Acebes



$n = 0, 1$; $X = O, H_2$; $Y = NH, CH_2$

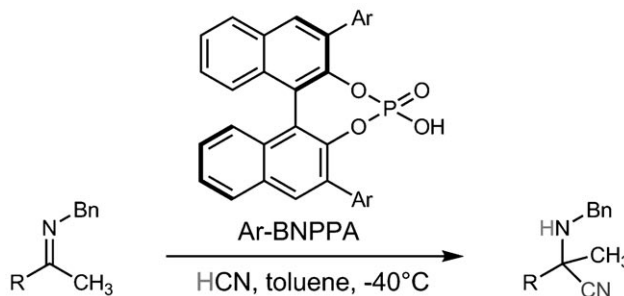
$R^5 =$ allyl, propargyl, allenyl, 1,3-butadien-2-yl

UPDATE

- 759** Metal-Free, Enantioselective Strecker Reactions Catalyzed by Chiral BINOL and TADDOL Catalysts

Adv. Synth. Catal. **2007**, 349, 759–764

Magnus Rueping,* Erli Sugiono, Stefan A. Moreth



CORRIGENDUM

In the paper by A. Gheorghe, A. Matsuno, and O. Reiser in Issue 9, 2006, pp. 1016–1020 (DOI: 10.1002/adsc.200606043), the molar amounts of co-catalysts $Mn(NO_3)_2 \cdot 4 H_2O$ and $Co(NO_3)_2 \cdot 6 H_2O$ are incorrect: in Table 3 (p 1018) and in the *General Procedure for the Aerobic Oxidation* (p 1019), the correct amounts of co-catalysts are 0.02 mmol instead of 0.2 mmol; in Table 4 (p. 1018) and in the procedure *Aerobic Oxidation of 4-Bromobenzyl Alcohol PS-CLICK-TEMPO; Recycling Experiments* (page 1019), 0.06 mmol of the co-catalysts instead of 0.6 mmol were employed. The absolute amounts employed were stated correctly.

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

*Author to whom correspondence should be addressed.