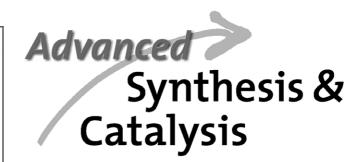
AIMS AND SCOPE

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.



succeeding Journal für praktische Chemie (founded in 1828)

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2297 Asymmetric Catalytic [4+3] Cycloaddition Reactions

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2307 [2+2+2] Cycloaddition Reactions Catalyzed by Transition Metal Complexes

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2328 Recent Advances in the Catalytic Pauson–Khand-Type Reaction

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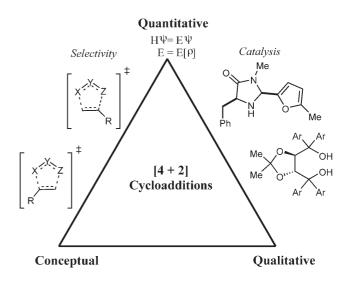
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Enantioselective Cyclopropanation with TADDOL-Derived Phosphate Ligands

Adv. Synth. Catal. 2006, 348, 2363-2370

Arnaud Voituriez, André B. Charette*

Enantioselective 1,3-Dipolar Cycloaddition of Nitrile Imines to α -Substituted and α,β -Disubstituted α,β -Unsaturated Carbonyl Substrates: A Method for Synthesizing Dihydropyrazoles Bearing a Chiral Quaternary Center

Adv. Synth. Catal. 2006, 348, 2371-2375

Mukund P. Sibi,* Levi M. Stanley, Takahiro Soeta

Construction of Highly-Functionalized Cyclopentanes from Silyl Enol Ethers and Activated Cyclopropanes by [3+2] Cycloaddition Catalyzed by Triflic Imide

Adv. Synth. Catal. 2006, 348, 2376-2380

Kiyosei Takasu,* Satoshi Nagao, Masataka Ihara*

1.25 equivs. L*ZnCH₂I DCE, -15 °C to 0 °C

Base, CH₂Cl₂ 4Å MS Up to 97% yield X = Cl or Br Ùp to 99% *e∈*

Palladium-Catalyzed Intramolecular [3C+2C] Cycloaddition of Alkylidenecyclopropanes to Allenes

Adv. Synth. Catal. 2006, 348, 2381-2384

Beatriz Trillo, Moisés Gulías, Fernando López, Luis Castedo, José L. Mascareñas*

$$X = C(CO_2Et)_2 \text{ or } NCHPh_2$$

$$R^1 \cdot R^2 = H \text{ or } Me$$

$$L1 = \begin{cases} Pd_2dba_3 \\ H \\ R^2 \end{cases}$$

$$R^2 \cdot R^1 \cdot R^2 = H \text{ or } Me$$

$$L1 = \begin{cases} t \cdot Bu \\ t \cdot Bu \end{cases}$$

2385 Synthesis of Indolizines and Benzoindolizines by Annulation of Donor-Acceptor Cyclopropanes with Electron-Deficient Pyridines and Quinolines

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- Nicholas A. Morra, Christian L. Morales, Barbora Bajtos, Xin Wang, Hyosook Jang, Jian Wang, Ming Yu, Brian L. Pagenkopf*
- 2391 Stereoselective Synthesis of Multifunctionalized 1,2,4-Triazolidines by a Ruthenium Porphyrin-Catalyzed Three-Component Coupling Reaction

Adv. Synth. Catal. 2006, 348, 2391-2396

- Ming-Zhong Wang, Hai-Wei Xu, Yungen Liu, Man-Kin Wong,* Chi-Ming Che*
- 2397 A Tandem, Nitroalkene Conjugate Addition/[3+2] Cycloaddition Approach to the Synthesis of the Pentacyclic Core of (\pm) -Scandine

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2403 Stereoselectivity in Metal Carbene Addition to a Carbon-Carbon Triple Bond Tied to the Reactant Diazoacetate Through a Chiral Linker

Adv. Synth. Catal. 2006, 348, 2403-2409

Michael P. Doyle,* Thomas M. Weathers Jr., Yuanhua Wang

- H OMe H OMe ML_n H OMe H OMe H OMe H OMe H OMe H OMe
- **2410** Synthesis of Glyco-Silicas by Cu(I)-Catalyzed Click-Chemistry and their Applications in Affinity Chromatography

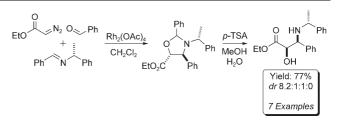
Adv. Synth. Catal. 2006, 348, 2410-2420

Mariano Ortega-Muñoz, Javier Lopez-Jaramillo, Fernando Hernandez-Mateo, Francisco Santoyo-Gonzalez*

- SIO, OSIMN, + Click chemistry
 SIO, OSIMN, + SIO, OSIMN, +
- 2421 1,3-Dipolar Cycloadditions of Carbonyl Ylides to Aldimines: Scope, Limitations and Asymmetric Cycloadditions

Adv. Synth. Catal. 2006, 348, 2421-2430

☐ Staffan Torssell, Peter Somfai*



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A Simple, Efficient, and Highly Enantioselective Synthesis of MS-153 Employing a Chiral Silane Lewis Acid-Promoted Acylhydrazone-Enol Ether [3+2] Cycloaddition

Adv. Synth. Catal. 2006, 348, 2431-2436

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Copper Salt-Catalyzed Azide-[3 + 2] Cycloadditions of Ynamides and Bis-Ynamides

Adv. Synth. Catal. 2006, 348, 2437-2442

Xuejun Zhang, Hongyan Li, Lingfeng You, Yu Tang, Richard P. Hsung*

Proline-Catalyzed Imino-Diels-Alder Reactions: Synthesis of meso-2,6-Diaryl-4-piperidones

Adv. Synth. Catal. 2006, 348, 2443-2448

Fernando Aznar,* Ana-Belén García, María-Paz Cabal

L-proline (20 mol %) r.t., MeOH 3 2

Formal Enantioselective [4+3] Cycloaddition by a Tandem Diels-Alder Reaction/Ring Expansion

Adv. Synth. Catal. 2006, 348, 2449-2456

Xing Dai, Huw M. L. Davies*

Enantioselective Diels-Alder Reaction of α-Acyloxyacroleins Catalyzed by Chiral 1,1'-Binaphthyl-2,2'diammonium Salts

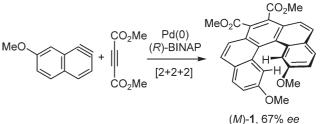
Adv. Synth. Catal. 2006, 348, 2457-2465

Akira Sakakura, Kenji Suzuki, Kazuaki Ishihara*

Asymmetric Catalysis in the [2+2+2] Cycloaddition of Arynes and Alkynes: Enantioselective Synthesis of a Pentahelicene

Adv. Synth. Catal. 2006, 348, 2466-2474

Jorge Caeiro, Diego Peña, Agustín Cobas, Dolores Pérez,* Enrique Guitián*



2475 Iridium-Catalyzed Enantioselective [2+2+2] Cycloaddition of Diynes and Monoalkynes for the Generation of Axial Chiralities

Adv. Synth. Catal. 2006, 348, 2475-2483

Takanori Shibata,* Yoshikazu Arai, Kyoko Takami, Kyoji Tsuchikama, Takayoshi Fujimoto, Satoshi Takebayashi, Kentaro Takagi

Z = O, NTs, CH_2 R = CH_2OH , CH_2NMeTs , CO_2Me R' = R, Me

up to >99% ee dl/meso or dr = >20/1

2484 Nickel-Catalyzed Intermolecular [3+2+2] and [2+2+2] Cocyclizations of Bicyclopropylidene and Alkynes1

Adv. Synth. Catal. 2006, 348, 2484-2492

Ligang Zhao, Armin de Meijere*

- **2493** Convergent Synthesis of Azabicycloalkenones using Squaric Acid as Platform

Adv. Synth. Catal. 2006, 348, 2493-2500

Yoshihiko Yamamoto,* Shoji Kuwabara, Hiroki Hayashi, Hisao Nishiyama

 R^{1} X R^{2} R^{3} $145 ^{\circ}C$ R^{3} R^{3}

X = NBn, O, and CH₂, 11 examples, 29 – 75% yields Catalytic decarbonylative cycloadditions

2501 Gold Catalysis: Dihydroisobenzofurans and Isochromanes by the Intramolecular Furan/Alkyne Reaction

Adv. Synth. Catal. 2006, 348, 2501-2508

A. Stephen K. Hashmi,* M. Wölfle, Filiz Ata, Melissa Hamzic, Ralph Salathé, Wolfgang Frey

- R^{1} O R^{2} $CHCl_{3}$ R^{1} OH OH
- **2509** Oxapolycycles from One-Pot Cross-Metathesis/Carbonyl Ylide Formation-Intramolecular Cycloaddition of α-Diazo- β -keto Esters

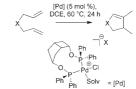
Adv. Synth. Catal. 2006, 348, 2509-2514

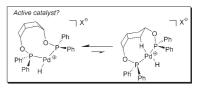
David M. Hodgson,* Deepshikha Angrish

- $\bigcap_{N_2 \leftarrow O_2 R^1} \bigcap_{Q \leftarrow I} \bigcap_{R^2} \bigcap_{R^2 \leftarrow CO_2 R^1} \bigcap_{R^3 \leftarrow CO_3 R^1} \bigcap_{R^3 \leftarrow CO_3$
- 2515 Phosphinite Ligand Effects in Palladium(II)-Catalysed Cycloisomerisation of 1,6-Dienes: Bicyclo[3.2.0]heptanyl Diphosphinite (B[3.2.0]DPO) Ligands Exhibit Flexible Bite Angles, an Effect Derived from Conformational Changes (exo- or endo-Envelope) in the Bicyclic Ligand Scaffold

Adv. Synth. Catal. 2006, 348, 2515-2530

Ian J. S. Fairlamb,* Stephanie Grant, Simona Tommasi, Jason M. Lynam, Marco Bandini, Hao Dong, Zhenyang Lin, Adrian C. Whitwood





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Rhodium-Catalyzed [4+2+2] Cycloaddition Reaction of Two Enynes or Diynes with One Diene to Give Eight-Membered Ring Compounds

Adv. Synth. Catal. 2006, 348, 2531-2539

Sang Ick Lee, Se Yeoun Park, Young Keun Chung*

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

*Author to whom correspondence should be addressed.

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