Nickel-Catalyzed Highly Atom-Economical C–C Coupling Reactions with π Components

L.-J. Xiao
M.-C. Ye*
Q.-L. Zhou*
Nankai University, P. R. of China

Symmetric Multiple Carbohelicenes

K. Kato
Y. Segawa*
K. Itami*
Nagoya University, Japan
**Engineered Cytochrome c-Catalyzed Lactone-Carbene B–H Insertion**

K. Chen
X. Huang
S.-Q. Zhang
A. Z. Zhou
S. B. J. Kan
X. Hong*
F. H. Arnold*
California Institute of Technology, USA
Zhejiang University, P. R. of China

**Concise Asymmetric Synthesis of Kweichowenol A**

D. B. Konrad
B. Kicin
D. Trauner*
University Munich, Germany
New York University, USA

**Highly Selective Reductive Cross-Amination between Aniline or Nitroarene Derivatives and Alkylamines Catalyzed by Polysilane-Immobilized Rh/Pt Bimetallic Nanoparticles**

A. Suzuki
H. Miyamura
S. Kobayashi*
The University of Tokyo, Japan
Gold-Catalyzed Cyclization/Intermolecular Methylene Transfer Sequence of O-Propargylic Oximes Derived from Glyoxylates

S. Gima
K. Shiga
M. Terada
I. Nakamura*
Tohoku University, Japan

Kinetically Controlled Fischer Glycosidation under Flow Conditions: A New Method for Preparing Furanosides

S. Masui
Y. Manabe
K. Hirao
A. Shimoyama
T. Fukuyama
I. Ryu
K. Fukase*
Osaka University, Japan

Design of New Amino Tf-Amide Organocatalysts: Environmentally Benign Approach to Asymmetric Aldol Synthesis

H.-J. Lee
N. Arumugam
A. I. Almansour
R. S. Kumar
K. Maruoka*
Kyoto University, Japan
Catalytic Hydrogenolysis of Substituted Diaryl Ethers by Using Ruthenium Nanoparticles on an Acidic Supported Ionic Liquid Phase (Ru@SILP-SO3H)

S. Rengshausen
F. Etscheidt
J. Großkurth
K. L. Luska
A. Bordet
W. Leitner*
Max-Planck-Institut für Chemische Energiekonversion, Germany
RWTH Aachen University, Germany

A Short, Efficient, and Stereoselective Synthesis of Piperine and its Analogues

A. Bauer
J.-H. Nam
N. Maulide*
University of Vienna, Austria

Access to 3D Alicyclic Amine-Containing Fragments through Transannular C–H Arylation

M. Lee
A. Adams
P. B. Cox
M. S. Sanford*
University of Michigan, USA
Bay-Region-Selective Annulative π-Extension (APEX) of Perylene Diimides with Arynes

T. Nakamuro
K. Kumazawa
H. Ito*
K. Itami*
Nagoya University, Japan

Bay-region-selective annulative π-extension (APEX)
- One-step π-extension at unfunctionalized bay-region
- No halogenation/oxidation
- Two-directional APEX
- 5 examples of π-extended PDI and CDI with moderate yields

Air-Stable Secondary Phosphine Oxides for Nickel-Catalyzed Cross-Couplings of Aryl Ethers by C–O Activation

D. Ghorai
J. Loup
G. Zanoni
L. Ackermann*
Georg-August-Universität, Germany

Earth-abundant nickel catalysis
efficient C–O activation
air- and moisture-stable SPO
room temperature

A Dendralenic C–H Acid

D. Höfler
R. Goddard
N. Nöthling
B. List*
Max-Planck-Institut für Kohlenforschung, Germany

i) H2CTf2 (6.0 equiv)
Ac2O (16 equiv)
MeC(OMe)3 (4.0 equiv)
CH2Cl2, –78 °C to RT
ii) TMP (6.0 equiv)
iii) H2SO4 (work-up)

HTBT
Oxidative β-Halogenation of Alcohols: A Concise and Diastereoselective Approach to Halohydrins

L. Ai
W. Wang
J. Wei
Q. Li
S. Song*
N. Jiao*
Peking University, P. R. of China

Asymmetric Synthesis of Chiral 1,3-Dimethyl Units Through a Double Michael Reaction of Nitromethane and Crotonaldehyde Catalyzed by Diphenylprolinol Silyl Ether

Y. Hayashi*
S. Toda
Tohoku University, Japan

Complex Boron-Containing Molecules through a 1,2-Metalate Rearrangement/anti-SN2′ Elimination/Cycloaddition Reaction Sequence

C. Tillin
R. Bigler
R. Calo-Lapido
B. S. L. Collins
A. Noble
V. K. Aggarwal*
University of Bristol, UK
Palladium(II)-Catalyzed C(sp³)–H Activation of N,O-Ketals towards a Method for the β-Functionalization of Ketones

from simple dialkyl ketones

15 examples 19–80% yield

functionalized pyrrolidone

1,4-dicarbonyl

Origins of Contrasteric π-Facial Selectivity in Epoxidations of Encumbered Tetrahydropyridines by a Bifunctional Peracid

major diastereomer

65–84% yield, 6:1–20:1 dr

hydrogen-bonded TS leading to major diastereomer

Evidence for a Radical Mechanism in Cu(II)-Promoted SnAP Reactions

radical clock SnAP

Cu(II) A Lewis acid, transmetalating agent, or C–Sn bond oxidant?
**A New Synthesis of Gefitinib**

T. S. Maskrey
T. Kristufek
M. G. LaPorte
P. R. Nyalapatla
P. Wipf*

University of Pittsburgh, USA

![Chemical structure of gefitinib]

4 steps

4 steps

14%

**Copper(I) Iodide-Catalyzed Asymmetric Synthesis of Optically Active Tertiary $\alpha$-Allenols**

Q. Liu
T. Cao
Y. Han
X. Jiang
Y. Tang
Y. Zhai
S. Ma*

Shanghai Institute of Organic Chemistry, P. R. of China

![Chemical structure of $\alpha$-allenols]

40–73%

up to 95% ee

(12 examples)

**Catalytic Enantioselective Synthesis of 4-Amino-1,2,3,4-tetrahydropyridine Derivatives from Intramolecular Nucleophilic Addition Reaction of Tertiary Enamides**

S. Tong*
M.-X. Wang*

Tsinghua University, P. R. of China

![Chemical structures of amino-1,2,3,4-tetrahydropyridine derivatives]

% ee

33.1
87.1
88.8
94.0
60.0

up to 99% yield
up to 96.2% ee
Direct Catalytic Asymmetric Mannich-Type Reaction of an α-CF₃ Amide to Isatin Imines

J.-S. Yu
H. Noda
N. Kumagai*
M. Shibasaki*
Institute of Microbial Chemistry (BIKAKEN), Japan

Selective Phthalimido-N-oxyl (PINO)-Catalyzed C–H Cyanation of Adamantane Derivatives

J.-P. Berndt
F. R. Erb
L. Ochmann
J. Beppler
P. R. Schreiner*
Justus Liebig University, Germany

Reduction of Nitroarenes to Anilines with a Benzothiazoline: Application to Enantioselective Synthesis of 2-Arylquinoline Derivatives

M. Miyagawa
R. Yamamoto
N. Kobayashi
T. Akiyama*
Gakushuin University, Japan
Manganese Catalyzed Asymmetric Transfer Hydrogenation of Ketones Using Chiral Oxamide Ligands

J. Schneekönig
K. Junge
M. Beller*
Leibniz-Institut für Katalyse e.V., Germany

R = Alkyl, Aryl
KOH-Bu (20 mol%), δPrOH (6 mL), 80 °C, 20 h
30–99% yield
15 examples up to 93% ee

Synthesis of 4-(Arylmethyl)proline Derivatives

S. Loosli
C. Foletti
M. Papmeyer
H. Wennemers*
ETH Zürich, Switzerland

Ar =
6 examples
60–83%
3 examples
74–89%

Photoinduced 1,2-Hydro(cyanomethylation) of Alkenes with a Cyanomethylphosphonium Ylide

T. Miura*
D. Moriyama
Y. Funakoshi
M. Murakami*
Kyoto University, Japan

R = -(CH₂)₂Ph, -(CH₂)₂Ac, -(CH₂)₂CO₂H, -(CH₂)₂CN,
-(CH₂)₂OH, -(CH₂)₂OBz, -(CH₂)₂Cl
ppy = 2-phenylpyridinato

A. Wu
J. Sun*
The Hong Kong University of Science and Technology, P. R. of China

- mild conditions
- high efficiency
- metal-free

[3+2] cyclization

68–86% yield