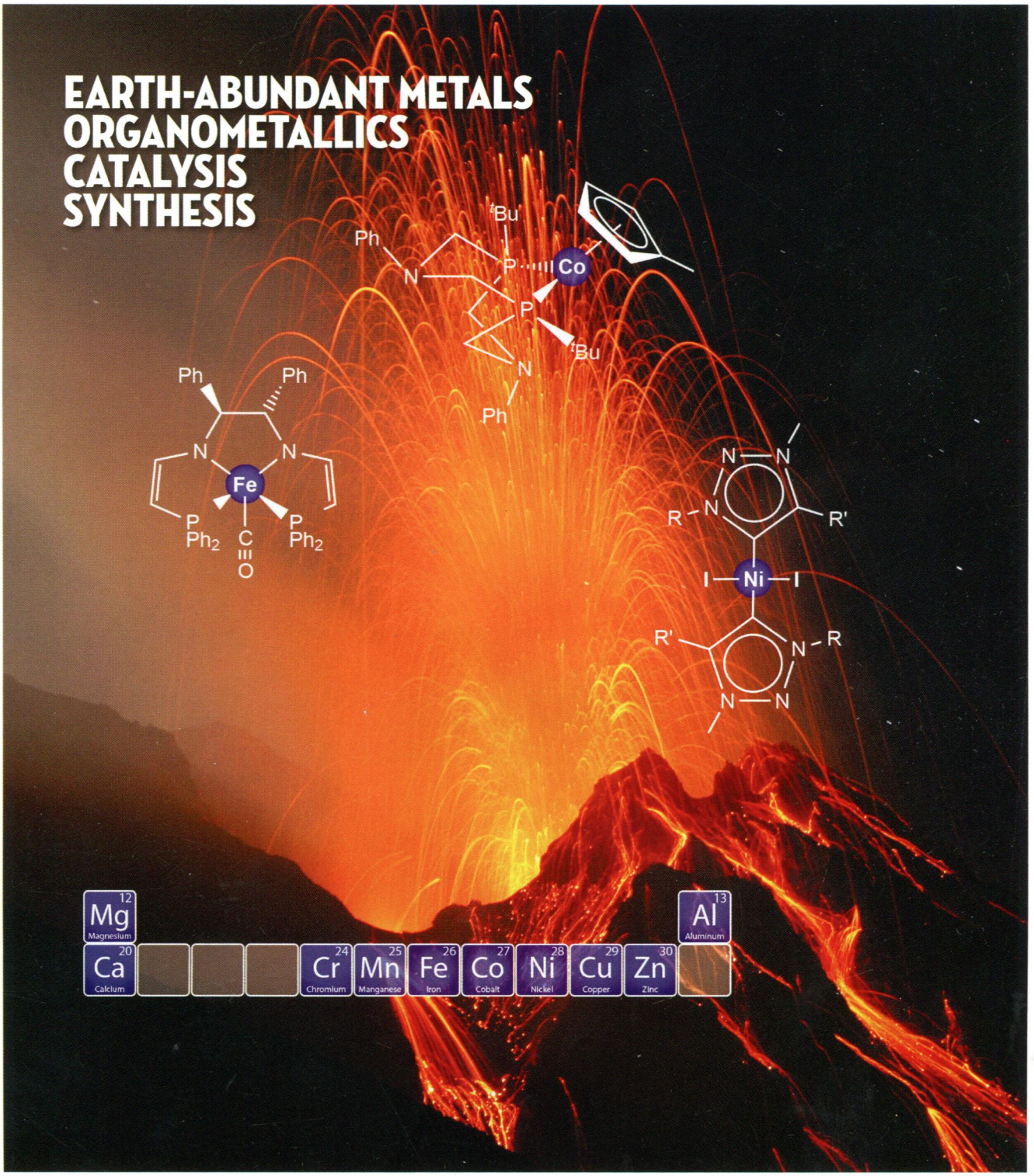
pubs.acs.org/organometallics

OCTOBER 27, 2014 VOL. 33 • ISSUE 20

ORGANOMETALLICS



ACS Publications
Most Trusted. Most Cited. Most Read.

www.acs.org

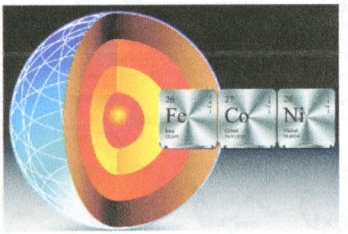
ORGANOMETALLICS

OCTOBER 27, 2014
VOLUME 33 ISSUE 20

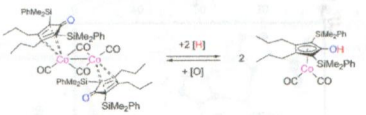
ORGND7 33(20) 5619–5910 (2014)
ISSN 0276-7333

ON THE COVER: While a considerable amount of organometallic research has revolved around precious metals with comparatively little focus on Earth-abundant metals, such as Ni, Co, and Fe, more recent times have seen a burst of activity with these elements. Spurred by a number of attractive triggers, such as their inherently low toxicity, their cost effectiveness, a shift to more sustainable processes, and probably above all by the tremendous intellectual challenge, these metals have become central to many most creative research programs and begin to sparkle in various areas of classical organometallic chemistry. This Special Issue aims to showcase the diverse efforts to advance the understanding and utilization of Earth-abundant metals and to stimulate further research in this burgeoning area.

Editor's Page

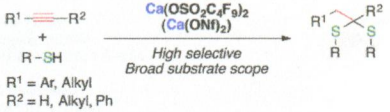


Communications



5626 dx.doi.org/10.1021/om500442u

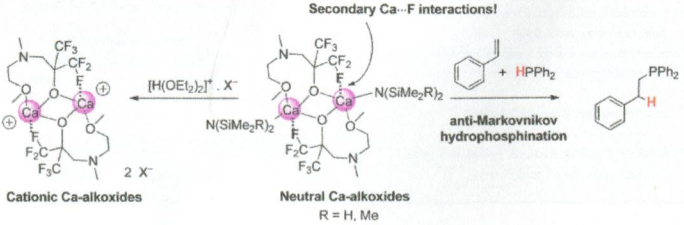
Calcium-Catalyzed Bis-hydrothiolation of Unactivated Alkynes Providing Dithioacetals
Martin Hut'ka, Tetsu Tsubogo, and Shū Kobayashi*



Articles

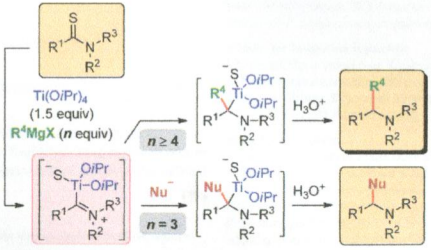
5630 dx.doi.org/10.1021/om500343w

Potassium and Well-Defined Neutral and Cationic Calcium Fluoroalkoxide Complexes: Structural Features and Reactivity
Sorin-Claudiu Roşca, Thierry Roisnel, Vincent Dorcet, Jean-François Carpentier,* and Yann Sarazin*



5643 dx.doi.org/10.1021/om500603v

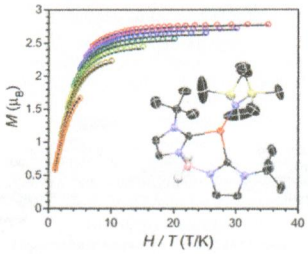
Reductive Alkylation of Thioamides with Grignard Reagents in the Presence of Ti(O*i*Pr)$_4$: Insight and Extension
Fabien Hermant, Ewelina Urbańska, Sarah Seizilles de Mazancourt, Thomas Maubert, Emmanuel Nicolas, and Yvan Six*



5654 S dx.doi.org/10.1021/om500417y

Low-Coordinate Iron(II) Complexes of a Bulky Bis(carbene)borate Ligand

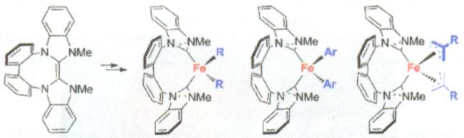
Wei-Tsung Lee, Ie-Rang Jeon, Song Xu, Diane A. Dickie, and Jeremy M. Smith*



5660 S dx.doi.org/10.1021/om5000612

Iron(II) Dihydrocarbyls Supported by a Biphenyl-Linked Bis(benzimidazol-2-ylidene) Ligand: Syntheses and Characterization

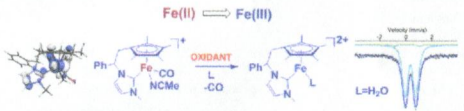
Yang Liu, Min Shi,* and Liang Deng*



5670 S dx.doi.org/10.1021/om500528p

Cationic Half-Sandwich Iron(II) and Iron(III) Complexes with N-Heterocyclic Carbene Ligands

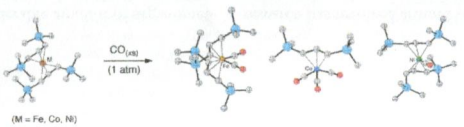
João M. S. Cardoso, Ana Fernandes, Bernardo de P. Cardoso, Maria Deus Carvalho, Liliana P. Ferreira, Maria José Calhorda, and Beatriz Royo*



5678 S dx.doi.org/10.1021/om5004573

Balancing Adduct Formation and Ligand Coupling with the Bulky Allyl Complexes [1,3-(SiMe3)2C3H3]2M (M = Fe, Co, Ni)

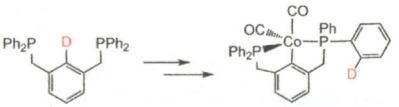
Nicholas R. Rightmire, Keith T. Quisenberry, and Timothy P. Hanusa*



5686 dx.doi.org/10.1021/om500079j

Cobalt PCP Pincer Complexes via an Unexpected Sequence of Ortho Metalations

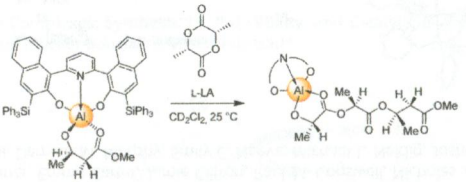
Mark A. Kent, Christopher H. Woodall, Mairi F. Haddow, Claire L. McMullin, Paul G. Pringle,* and Duncan F. Wass*



5693 dx.doi.org/10.1021/om401214q

Discrete *O*-Lactate and *β*-Alkoxybutyrate Aluminum Pyridine–Bis(naphtholate) Complexes: Models for Mechanistic Investigations in the Ring-Opening Polymerization of Lactides and *β*-Lactones

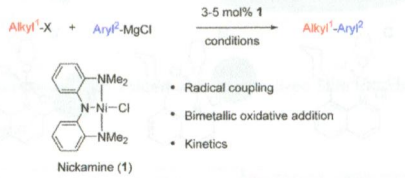
Joice S. Klitzke, Thierry Roisnel, Evgeny Kirillov,* Osvaldo de L. Casagrande Jr.,* and Jean-François Carpentier*



5708 dx.doi.org/10.1021/om500506y

Bimetallic Oxidative Addition in Nickel-Catalyzed Alkyl–Aryl Kumada Coupling Reactions

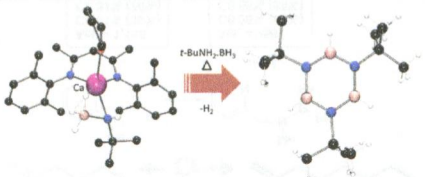
Jan Breitenfeld, Matthew D. Wodrich, and Xile Hu*



5716 dx.doi.org/10.1021/om500467b

Stoichiometric and Catalytic Reactivity of *tert*-Butylamine–Borane with Calcium Silylamides

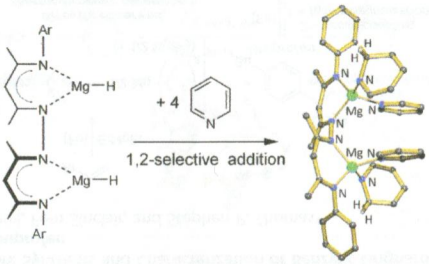
Peter Bellham, Michael S. Hill,* and Gabriele Kociok-Köhn



5722 Ⓢ dx.doi.org/10.1021/om500469h

Multinuclear Magnesium Hydride Clusters: Selective Reduction and Catalytic Hydroboration of Pyridines

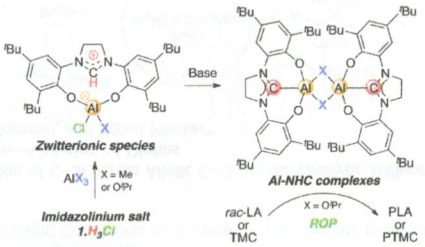
Julia Intemann, Martin Lutz, and Sjoerd Harder*



5730 Ⓢ dx.doi.org/10.1021/om5004557

NHC Bis-Phenolate Aluminum Chelates: Synthesis, Structure, and Use in Lactide and Trimethylene Carbonate Polymerization

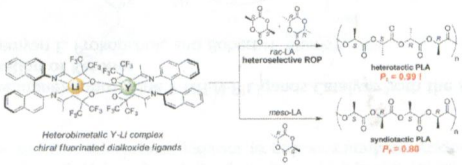
Charles Romain, Christophe Fliedel, Stéphane Bellemin-Laponnaz,* and Samuel Dagorne



5740 Ⓢ dx.doi.org/10.1021/om500458g

Aluminum, Indium, and Mixed Yttrium–Lithium Complexes Supported by a Chiral Binap-Based Fluorinated Dialkoxide: Structural Features and Heteroselective ROP of Lactide

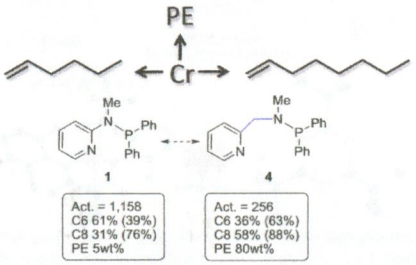
Nicolas Maudoux, Thierry Roisnel, Jean-François Carpentier,* and Yann Sarazin*



5749 S dx.doi.org/10.1021/om5003683

Selective Ethylene Oligomerization with Chromium Complexes Bearing Pyridine–Phosphine Ligands: Influence of Ligand Structure on Catalytic Behavior

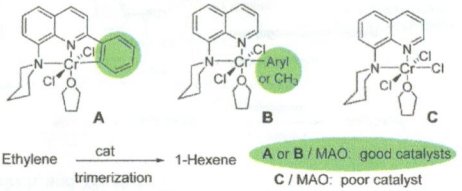
Yun Yang, Joanna Gurnham, Boping Liu, Robbert Duchateau,* Sandro Gambarotta,* and Ilia Korobkov



5758 S dx.doi.org/10.1021/om500459k

Chromium Aryl Complexes with N-Donor Ligands as Catalyst Precursors for Selective Ethylene Trimerization

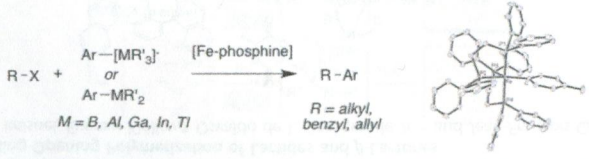
Mathias Ronellenfitsch, Hubert Wadepohl, and Markus Enders*



5767 S dx.doi.org/10.1021/om500518r

Iron Phosphine Catalyzed Cross-Coupling of Tetraorganoborates and Related Group 13 Nucleophiles with Alkyl Halides

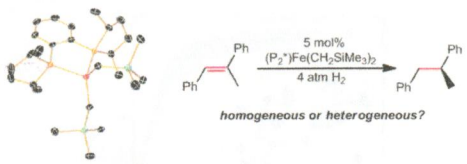
Robin B. Bedford,* Peter B. Brenner, Emma Carter, Jamie Clifton, Paul M. Cogswell, Nicholas J. Gower, Mairi F. Haddow, Jeremy N. Harvey, Jeffrey A. Kehl, Damien M. Murphy, Emily C. Neeve, Michael L. Neidig, Joshua Nunn, Benjamin E. R. Snyder, and Joseph Taylor



5781 S dx.doi.org/10.1021/om500329q

Synthesis and Hydrogenation Activity of Iron Dialkyl Complexes with Chiral Bidentate Phosphines

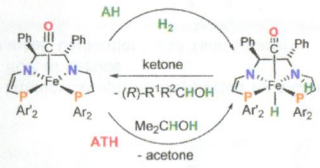
Jordan M. Hoyt, Michael Shevlin, Grant W. Margulieux, Shane W. Krska, Matthew T. Tudge, and Paul J. Chirik*



5791 S dx.doi.org/10.1021/om500479q

Iron Catalysts Containing Amine(imine)diphosphine P-NH-N-P Ligands Catalyze both the Asymmetric Hydrogenation and Asymmetric Transfer Hydrogenation of Ketones

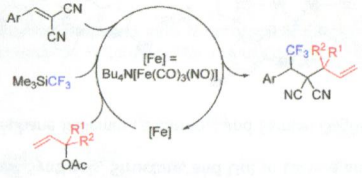
Weiwei Zuo, Sebastian Tauer, Demyan E. Prokopchuk, and Robert H. Morris*



5802 S dx.doi.org/10.1021/om5005012

Fe-Catalyzed Nucleophilic Activation of C–Si versus Allylic C–O Bonds: Catalytic Trifluoromethylation of Carbonyl Groups versus Tandem Trifluormethylation–Allylation of Olefins

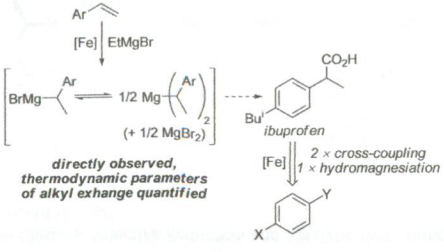
Johannes E. M. N. Klein, Susanne Rommel, and Bernd Plietker*



5811 S dx.doi.org/10.1021/om500319h

Iron-Catalyzed Hydromagnesiation: Synthesis and Characterization of Benzylic Grignard Reagent Intermediate and Application in the Synthesis of Ibuprofen

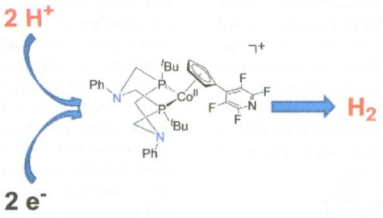
Mark D. Greenhalgh, Adam Kolodziej, Fern Sinclair, and Stephen P. Thomas*



5820 S dx.doi.org/10.1021/om5004607

Cobalt Complexes Containing Pendant Amines in the Second Coordination Sphere as Electrocatalysts for H_2 Production

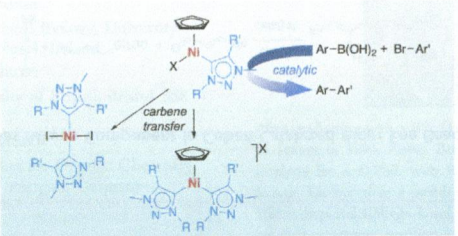
Ming Fang, Eric S. Wiedner, William G. Dougherty, W. Scott Kassel, Tianbiao Liu, Daniel L. DuBois, and R. Morris Bullock*



5834 S dx.doi.org/10.1021/om500593s

Mesoionic Triazolylidene Nickel Complexes: Synthesis, Ligand Lability, and Catalytic C–C Bond Formation Activity

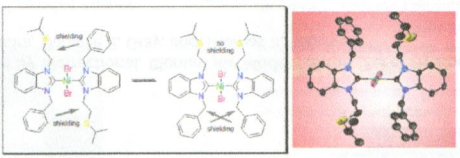
Yingfei Wei, Ana Petronilho, Helge Mueller-Bunz, and Martin Albrecht*



5845 S dx.doi.org/10.1021/om500484q

Nickel(II) Benzimidazolin-2-ylidene Complexes with Thioether-Functionalized Side Chains as Catalysts for Suzuki–Miyaura Cross-Coupling

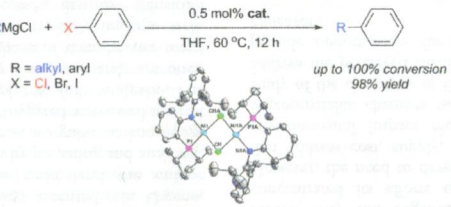
Jan C. Bernhammer and Han Vinh Huynh*



5852 S dx.doi.org/10.1021/om5006353

Nickel(II) Complexes Containing Bidentate Diarylamido Phosphine Chelates: Kumada Couplings Kinetically Preferred to β-Hydrogen Elimination

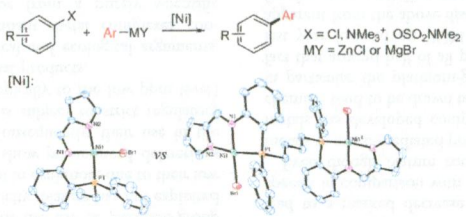
Ming-Tsz Chen, Wei-Ying Lee, Tzung-Ling Tsai, and Lan-Chang Liang*



5863 S dx.doi.org/10.1021/om500452c

Mono- and Dinuclear Pincer Nickel Catalyzed Activation and Transformation of C–Cl, C–N, and C–O Bonds

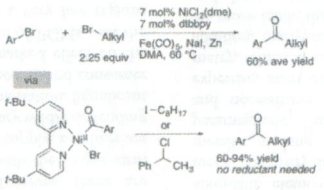
Xia Yang and Zhong-Xia Wang*



5874 S dx.doi.org/10.1021/om5004682

Stoichiometric Reactions of Acylnickel(II) Complexes with Electrophiles and the Catalytic Synthesis of Ketones

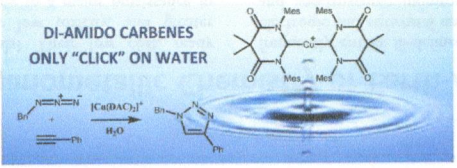
Alexander C. Wotal, Ryan D. Ribson, and Daniel J. Weix*



5882 S dx.doi.org/10.1021/om5004732

Use of Ring-Expanded Diamino- and Diamidocarbene Ligands in Copper Catalyzed Azide–Alkyne "Click" Reactions

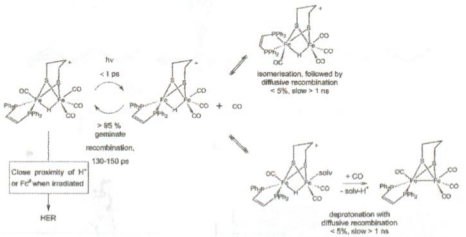
Lee R. Collins, Thomas M. Rookes, Mary F. Mahon, Ian M. Riddlestone, and Michael K. Whittlesey*



5888 dx.doi.org/10.1021/om500521w

Investigation of the Ultrafast Dynamics Occurring during Unsensitized Photocatalytic H_2 Evolution by an [FeFe]-Hydrogenase Subsite Analogue

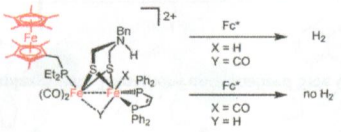
Pim W. J. M. Frederix, Katrin Adamczyk, Joseph A. Wright, Tell Tuttle, Rein V. Ulijn, Christopher J. Pickett,* and Neil T. Hunt*



5897 dx.doi.org/10.1021/om5004013

Hydrogen Production Catalyzed by Bidirectional, Biomimetic Models of the [FeFe]-Hydrogenase Active Site

James C. Lansing, James M. Camara, Danielle E. Gray, and Thomas B. Rauchfuss*

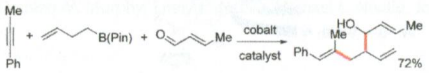


Notes

5907 dx.doi.org/10.1021/om500292t

Homoallylpinacolboronic Ester as Alkene Component in Cobalt-Catalyzed Alder Ene Reactions

Peter Sušnik and Gerhard Hilt*



Supporting Information available via online article