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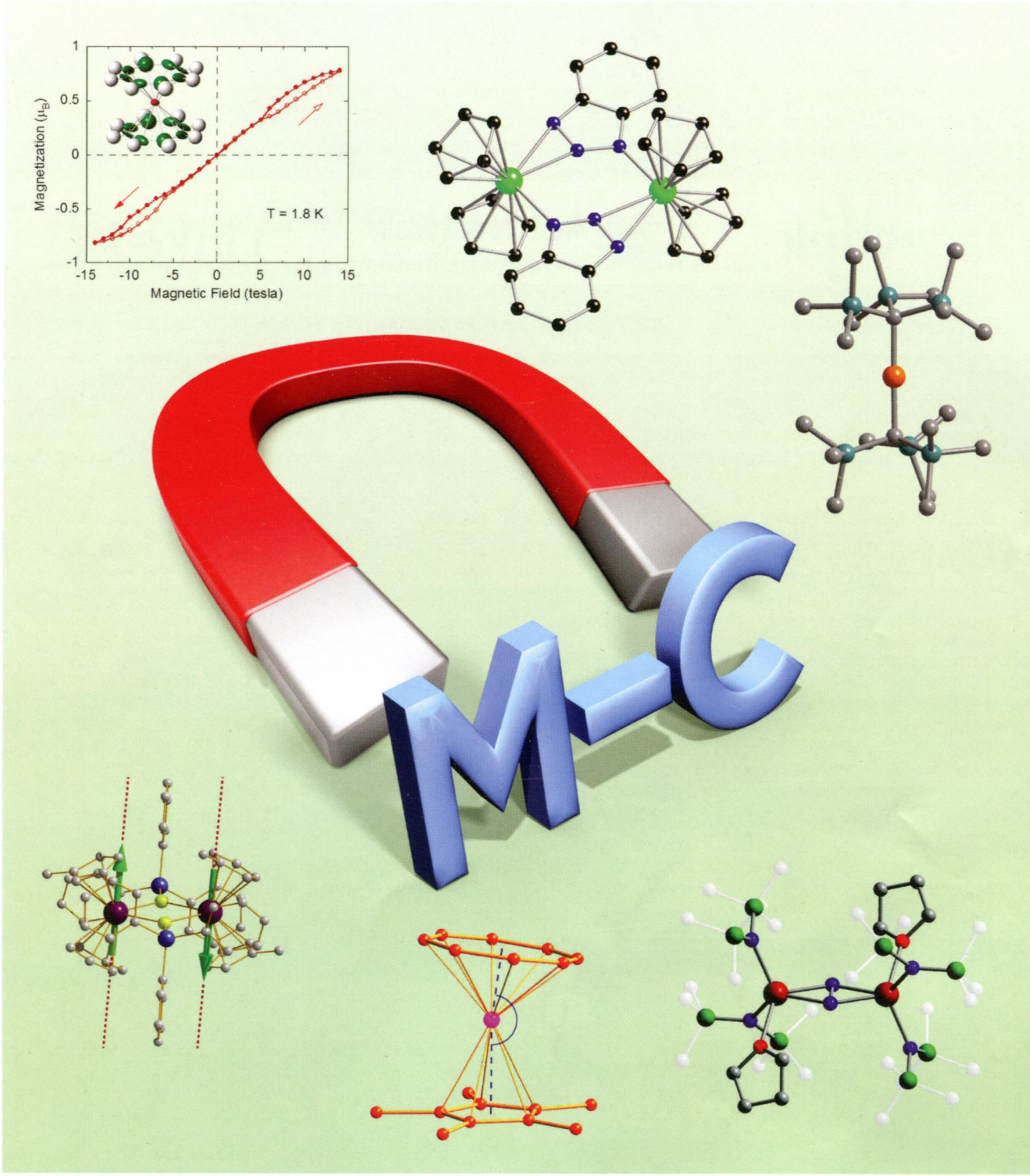
ORGANOMETALLICS



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ORGANOMETALLICS

MARCH 10, 2014

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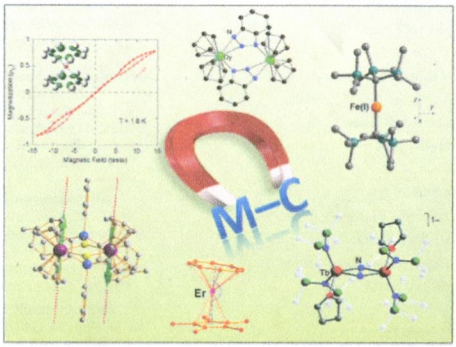
ON THE COVER: Ligands that form part of the staple diet of synthetic organometallic chemists are beginning to make an impact in single-molecule magnetism. In some instances the impact has been profound, and it has expanded the frontiers of the field. Designing single-molecule magnets (SMMs) using organometallic chemistry is an increasingly important complement to synthetic strategies that involve "classical" coordination chemistry, but the different electronic properties of many organometallic ligands, and the ways in which they stabilize unusual coordination environments, provide new ways of testing established theories in molecular magnetism. By using this review as an entry point to the field, hopefully more organometallic chemists will consider directing their repertoire towards the design and realization of new, and possibly improved, SMMs. See the paper by Layfield et al. on pages 1084−109.

Editor's Page

Reviews

Cover Paper



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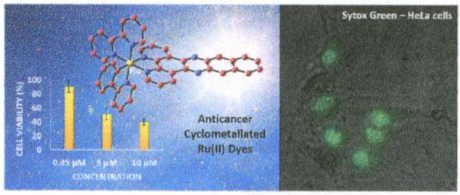
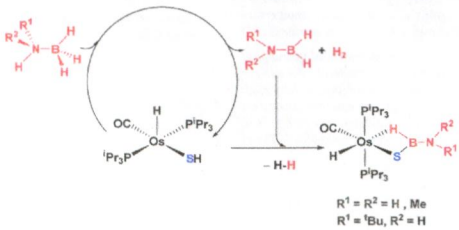
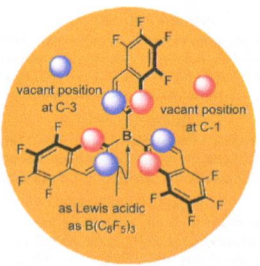
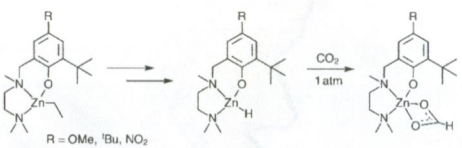
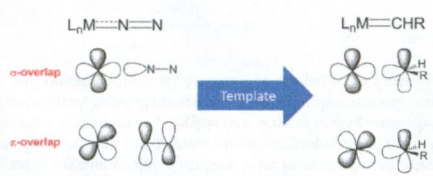






Articles

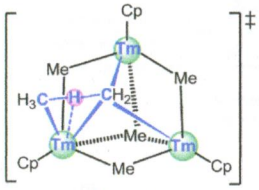




1126 S dx.doi.org/10.1021/om400920x

DFT Studies on the Methane Elimination Reaction of a Trinuclear Rare-Earth Polymethyl Complex: σ-Bond Metathesis Assisted by Cooperation of Multimetal Sites

Gen Luo, Yi Luo,* Wenxiong Zhang, Jingping Qu, and Zhaomin Hou*



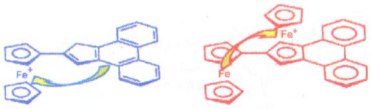
Transition State

Multimetal-Cooperated
σ-Bond Metathesis

1135 S dx.doi.org/10.1021/om4009668

Charge Transfer Properties in Cyclopenta[*l*]phenanthrene Ferrocenyl Complexes

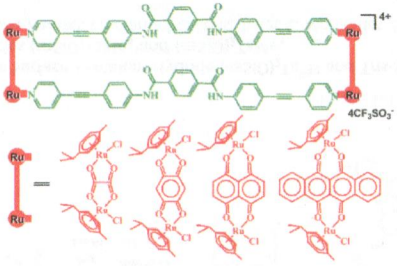
Alessandro Donoli, Annalisa Bisello, Roberta Cardena, Cristina Prinzivalli, Marco Crisma, and Saverio Santi*



1144 S dx.doi.org/10.1021/om401042m

Coordination-Driven Self-Assembly and Anticancer Potency Studies of Arene–Ruthenium-Based Molecular Metalla-Rectangles

Anurag Mishra, Yong Joon Jeong, Jae-Ho Jo, Se Chan Kang,* Hyunuk Kim, and Ki-Whan Chi*



1152 S dx.doi.org/10.1021/om401120h

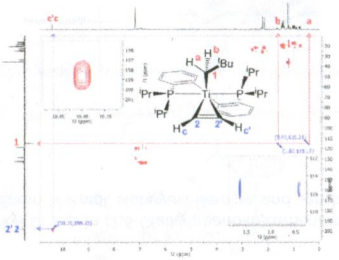
Chemoselective, Practical Synthesis of Cobaltocenium Carboxylic Acid Hexafluorophosphate

Stefan Vanicek, Holger Kopacka, Klaus Wurst, Thomas Müller, Herwig Schottenberger, and Benno Bildstein*

1157 S dx.doi.org/10.1021/om401147e

Abstraction of a Vinylic Hydrogen to Form Alkynes. Multinuclear and Multidimensional NMR Spectroscopy and Computational Studies Elucidating Structural Solution Behavior of Acetylene and Propyne Complexes of Titanium

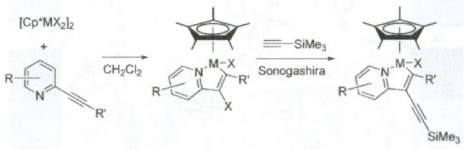
Marco G. Crestani, Anne K. Hickey, Balazs Pinter, Xinfeng Gao, and Daniel J. Mindiola*



1174 S dx.doi.org/10.1021/om401154c

N-Metallacycles from $[Cp^*MX_2]_2$ and Alkynylpyridines: Synthesis, Reaction Pathway, and Aromaticity

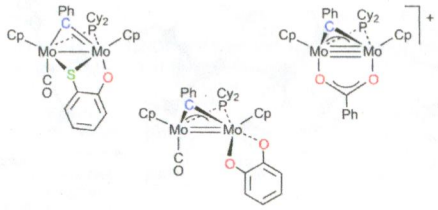
Jing Wei Teo, Venugopal Shanmugham Sridevi, and Weng Kee Leong*



1181 S dx.doi.org/10.1021/om401192m

Reactions of the Carbyne-Bridged Radical Complex $[Mo_2(\eta^5\text{-}C_5H_5)_2(\mu\text{-}CPh)(\mu\text{-}PCy_2)(\mu\text{-}CO)]^+$ with Bidentate Ligands Having E–H Bonds (E = O, S, N)

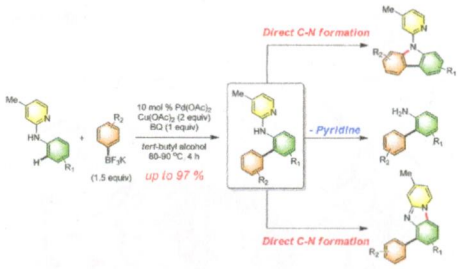
M. Angeles Alvarez, M. Esther García, Sonia Menéndez, and Miguel A. Ruiz*



1190 S dx.doi.org/10.1021/om401195w

Palladium(II)-Catalyzed Direct Ortho Arylation of 4-Methyl-*N*-phenylpyridin-2-amines via C–H Activation/C–C Coupling and Synthetic Applications

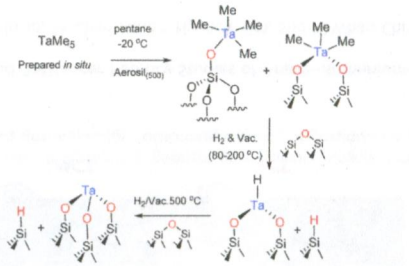
Jean-Ho Chu,* Hao-Ping Huang, Wen-Ting Hsu, Shih-Tien Chen, and Ming-Jung Wu*



1205 S dx.doi.org/10.1021/om4012196

Facile and Efficient Synthesis of the Surface Tantalum Hydride $(\equiv SiO)_2Ta^{III}H$ and Tris-Siloxy Tantalum $(\equiv SiO)_3Ta^{III}$ Starting from Novel Tantalum Surface Species $(\equiv SiO)TaMe_4$ and $(\equiv SiO)_2TaMe_3$

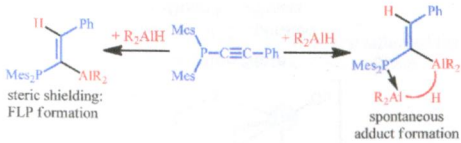
Yin Chen, Samy Ould-Chikh, Edy Abou-Hamad, Emmanuel Callens, Janet C. Mohandas, Syed Khalid, and Jean-Marie Basset*



1212 S dx.doi.org/10.1021/om4012246

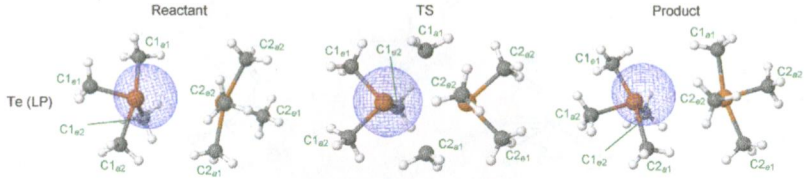
Al/P-Based Frustrated Lewis Pairs: Limitations of Their Synthesis by Hydroalumination and Formation of Dialkylaluminum Hydride Adducts

Werner Uhl,* Christian Appelt, Jana Backs, Hauke Westenberg, Agnes Wollschläger, and Jens Tannert



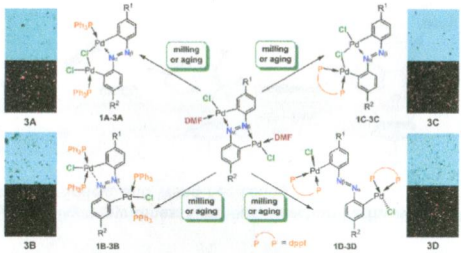
1218 S dx.doi.org/10.1021/om401230r

Theoretical Study on the Ligand Exchange Reactions of Hypervalent Antimony and Tellurium Compounds
Masato Kobayashi* and Kin-ya Akiba



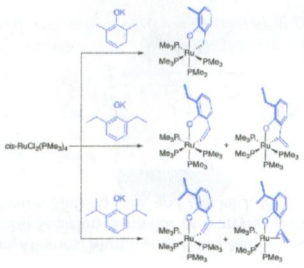
1227 S dx.doi.org/10.1021/om500008v

Aging and Ball-Milling as Low-Energy and Environmentally Friendly Methods for the Synthesis of Pd(II) Photosensitizers
Marina Juribašić, Ivan Halasz, Darko Babić, Dominik Cinčić, Janez Plavec, and Manda Ćurić*



1235 S dx.doi.org/10.1021/om5000248

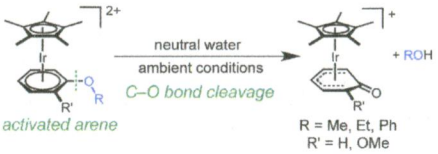
Multiple C–H Bond Cleavage of the Alkyl Group in (2,6-Dialkylphenoxo)ruthenium(II) Complexes
Masafumi Hirano,* Yasuto Yanagisawa, Endin Mulyadi, Nobuyuki Komine, and Sanshiro Komiya



1245 S dx.doi.org/10.1021/om5000166

Arene Activation at Iridium Facilitates C–O Bond Cleavage of Aryl Ethers

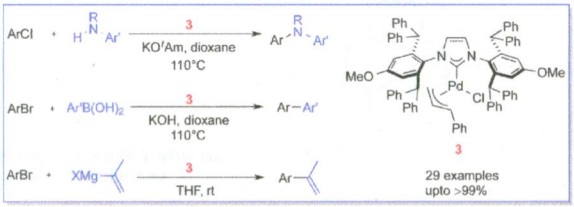
Alexander J. M. Miller,* Werner Kaminsky, and Karen I. Goldberg*



1253 S dx.doi.org/10.1021/om500026s

[Pd(IPr*^{OMe})(cin)Cl] (cin = Cinnamyl): A Versatile Catalyst for C–N and C–C Bond Formation

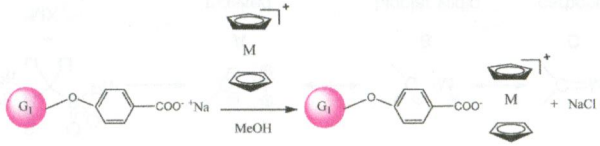
Gulluzar Bastug and Steven P. Nolan*



1259 S dx.doi.org/10.1021/om500028e

Rhodicenium Salts: From Basic Chemistry to Polyelectrolyte and Dendritic Macromolecules

Amalia Rapakousiou, Lucia Herrer Jimenez, Yanlan Wang, Claire Mouche, and Didier Astruc*

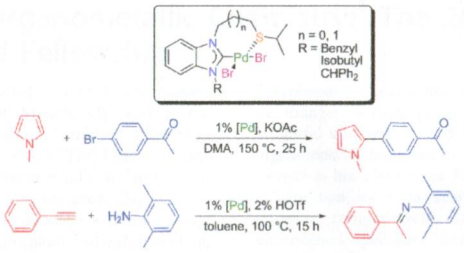


9 M = Rh (**10**) or Co (**12**)

1266 S dx.doi.org/10.1021/om500083r

Benzimidazolin-2-ylidene Complexes of Palladium(II) Featuring a Thioether Moiety: Synthesis, Characterization, Molecular Dynamics, and Catalytic Activities

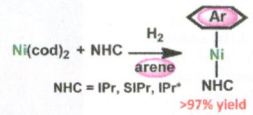
Jan C. Bernhammer and Han Vinh Huynh*



1276 S dx.doi.org/10.1021/om500088p

One-Pot, Single-Step, and Gram-Scale Synthesis of Mononuclear [(η^6-arene)Ni(N-heterocyclic carbene)] Complexes: Useful Precursors of the Ni^0–NHC Unit

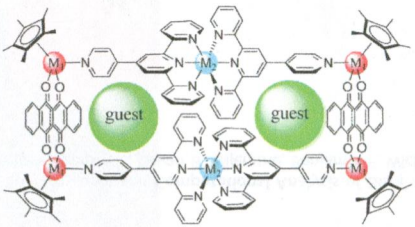
Yoichi Hoshimoto, Yukari Hayashi, Haruka Suzuki, Masato Ohashi, and Sensuke Ogoshi*



1283 S dx.doi.org/10.1021/om500093p

Box-like Heterometallic Macrocycles Derived from Bis-Terpyridine Metalloligands

Jing-Jing Liu, Yue-Jian Lin, and Guo-Xin Jin*

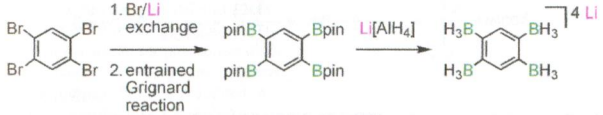


M_1 = Ir and Rh; M_2 = Zn, Ni and Cu.

1291 S dx.doi.org/10.1021/om500104w

High-Yield Syntheses and Reactivity Studies of 1,2-Diborylated and 1,2,4,5-Tetraborylated Benzenes

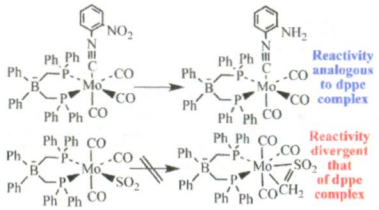
Ömer Seven, Michael Bolte, Hans-Wolfram Lerner, and Matthias Wagner*



1300 S dx.doi.org/10.1021/om5001056

Group VI Metal Carbonyl Complexes of Bis((diphenylphosphino)methyl)diphenylborate and an Assessment of Their Utility for Template Ligand Syntheses

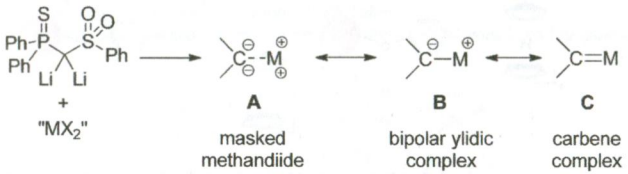
Paul J. Fischer,* Laura Avena, Trent D. Bohrmann, Michelle C. Neary, Grace K. Putka, and Kevin P. Sullivan



1310 S dx.doi.org/10.1021/om5001277

Synthesis and Electronic Structure of Carbene Complexes Based on a Sulfonyl-Substituted Dilithio Methandiide

Julia Becker and Viktoria H. Gessner*

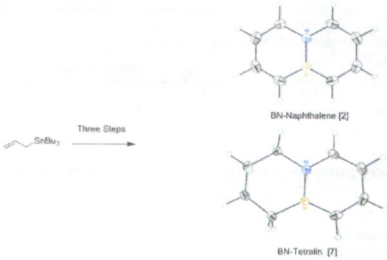


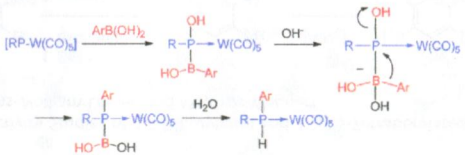
Notes

1318 S dx.doi.org/10.1021/om401077k

Syntheses of [6,6]-Fused-Ring 1,2-Azaborines

Ahleah D. Rohr, Jeff W. Kampf, and Arthur J. Ashe III*





Additions and Corrections

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