

**HASIL PENILAIAN SEJAWAT SEBIDANG ATAU PEER REVIEW
KARYA ILMIAH : JURNAL ILMIAH**

Judul Jurnal Ilmiah (Artikel) : **Pt/In₂S₃/CdS/Cu₂ZnSnS₄ Thin Film as an Efficient and Stable Photocathode for Water Reduction under Sunlight Radiation**

Nama/ Jumlah Penulis : **Gunawan/7**

Status Pengusul : penulis ke-2

Identitas Jurnal Ilmiah :

- a. Nama Jurnal : Journal of the American Chemical Society (JACS)
- b. Nomor ISSN : 0002-7863
- c. Vol, No., Bln Thn : 137, 42, Oktober 2015
- d. Penerbit : American Chemical Society
- e. DOI artikel (jika ada) : 10.1021/jacs.5b09015
- f. Alamat web jurnal : <https://pubs.acs.org/journal/jacsat>
- g. Terindex : <https://pubs.acs.org/doi/abs/10.1021/jacs.5b09015>
- h. Alamat Artikel : <https://pubs.acs.org/doi/abs/10.1021/jacs.5b09015>
- i. Terindex : Web of Science and SwetsWise

Kategori Publikasi Jurnal Ilmiah : ☒ Jurnal Ilmiah Internasional
(beri ✓ pada kategori yang tepat) ☐ Jurnal Ilmiah Nasional Terakreditasi
☐ Jurnal Ilmiah Nasional Tidak Terakreditasi

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d. Kelengkapan unsur dan kualitas terbitan/jurnal (30%)	12			11
Total = (100%)	40			37
Nilai Pengusul = 0,4/6 x 37 = 2,46				

Catatan Penilaian artikel oleh Reviewer:

1. Kesesuaian dan kelengkapan unsur isi jurnal:

Unsur isi jurnal ini sesuai dengan kepakaran penulis. Isi unsur jurnal lengkap sesuai yang dipersyaratkan oleh jurnal internasional (Journal of the American Chemical Society (JACS)). Dengan similarity 11%

2. Ruang lingkup dan kedalaman pembahasan:

Ruang lingkup jurnal ini tentang lapis tipis Pt/In₂S₃/CdS/Cu₂ZnSnS₄ sebagai fotokatoda yang efisien dan tabil utk reduksi air di bawah radiasi sinar matahari. Pembahasannya cukup mendalam dengan menggunakan instrumentasi pengujian yg sangat baik. Pembahasannya disertai referensi yang menguatkan data yang diperoleh.

3. Kecukupan dan kemitahiran data/informasi dan metodologi:

Data/informasi yang disampaikan cukup baik dan mutakhir dengan mengaitkan referensi pendukung pada pembahasan. Metodologi disampaikan secara detil sehingga peneliti lain bisa mengacu penelitian ini. Referensi yang digunakan up to date (87% referensi kurang dari 5 th artikel terbit).

4. Kelengkapan unsur dan kualitas terbitan:

Unsur artikel lengkap, kualitas jurnal sangat bagus dan jurnal Q1 bidang kimia (American Chemical Society (JACS)). Artikel ini terbit waktu pengusul masih S3 (2012-2015).

Semarang, 10 Juli 2021
Reviewer I

Prof. Dr. Dra. Meiny Suzery, M.S.
NIP. 196005101989032001
Unit Kerja :FSM Universitas Diponegoro
Bidang Ilmu: Kimia Organik

LEMBAR
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Identitas Jurnal Ilmiah :

a. Nama Jurnal	: Journal of the American Chemical Society (JACS)
b. Nomor ISSN Cetak	: 0002-7863
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c. Vol, No., Bln Thn	: 137, 42, Oktober 2015
d. Penerbit	: American Chemical Society
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Kategori Publikasi Jurnal Ilmiah : ☒ Jurnal Ilmiah Internasional
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Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Maksimal Jurnal Ilmiah			Nilai Akhir Yang Diperoleh
	Internasional 40	Nasional Terakreditasi 	Nasional Tidak Terakreditasi 	
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b. Ruang lingkup dan kedalaman pembahasan (30%)	12			12
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	12			12
d. Kelengkapan unsur dan kualitas terbitan/jurnal (30%)	12			12
Total = (100%)	40			40
Nilai Pengusul = 0,4/6 x 40 = 2.67				

1. Kesesuaian dan kelengkapan unsur isi jurnal:

Artikel sesuai dengan kepakaran penulis, lengkap unsur dalam isi jurnal (4) yaitu judul, abstrak (berisi latar belakang, metode dan hasil), Grafik dan tabel disitasi dan dibahas, penulisan sesuai dengan panduan penulisan jurnal Journal of the American Chemical Society (JACS). Tata penulisan terjadi dengan baik (4)

2. Ruang lingkup dan kedalaman pembahasan:

Ruang lingkup artikel terkait untuk meneliti Lapis tipis **Pt/In₂S₃/CdS/Cu₂ZnSnS₄ sebagai suatu fotokatode yang efisien dan stabil untuk reduksi air di bawah radiasi sinar matahari** pembahasan penelitian sudah dilakukan dengan cukup mendalam dalam membahas fabrikasi semikonduktor untuk *water splitting* dan karakterisasinya dengan instrumen yang lengkap XRD, SEM EDX, XPS (XP spektroskopi), UV/vis/NIR, karakterisasi photocurrent property nya seperti current-density vs potensial (J-V), HC-STH/% vs potensial curve, rapat arus vs waktu, H₂ yang dilepaskan vs waktu (12)

3. Kecukupan dan kemutakhiran data/informasi dan metodologi:

Referensi yang digunakan menunjang pembahasan dan metodologi yang digunakan uptodate (87% referensi dengan tahun terbit sebelum 5 tahun artikel ini terbit (2015). Metodologi singkat telah ditulis dan dibahas (12)

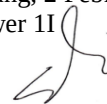
4. Kelengkapan unsur dan kualitas terbitan:

Secara umum kelengkapan unsur artikel lengkap. Kualitas jurnal Journal of the American Chemical Society (JACS) yang diterbitkan oleh American Chemical Society (ACS) sangat bagus dan konsisten (mulai 2010) sampai terbit artikel ini mempunyai quartil 1 (Q1) terindex di Web of Science and SwetsWise serta schimago termasuk jurnal Quartile 1 dengan SJR 6,675 (2015). (12)

Catatan: Artkel ini terbit ketika pengusul sekolah S3 (2012-2015) . Turnitin 11 %.

Semarang, 2 Februari 2021

Reviewer II



Prof. Dr. M. Cholid Djunaidi, S.Si, M.Si

NIP. 197007021996031004

Unit Kerja :FSM Universitas Diponegoro

Bidang Ilmu: Kimia Analitik



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Journal of the American Chemical Society
Volume 137, Issue 42, 8 October 2015, Pages 13691-13697

Pt/In₂S₃/CdS/Cu₂ZnSnS₄ Thin Film as an Efficient and Stable Photocathode for Water Reduction under Sunlight Radiation (Article)

Jiang, F.^a, **Gunawan^a**, Harada, T.^a, Kuang, Y.^b, Minegishi, T.^b, Domen, K.^b, Ikeda, S.^a ✉

^aResearch Center for Solar Energy Chemistry, Osaka University, 1-3 Machikaneyama, Toyonaka, Osaka, 560-8531, Japan

^bDepartment of Chemical System Engineering, School of Engineering, University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113-8656, Japan

Abstract

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An electrodeposited Cu₂ZnSnS₄ (CZTS) compact thin film modified with an In₂S₃/CdS double layer and Pt deposits (Pt/In₂S₃/CdS/CZTS) was used as a photocathode for water splitting of hydrogen production under simulated sunlight (AM 1.5G) radiation. Compared to platinized electrodes based on a bare CZTS film (Pt/CZTS) and a CZTS film modified with a CdS single layer (Pt/CdS/CZTS), the Pt/In₂S₃/CdS/CZTS electrode exhibited a significantly high cathodic photocurrent. Moreover, the coverage of the In₂S₃ layer was found to be effective for stabilization against degradation induced by photocorrosion of the CdS layer. Bias-free water splitting with a power conversion efficiency of 0.28% was achieved by using a simple two-electrode cell consisting of the Pt/In₂S₃/CdS/CZTS photocathode and a BiVO₄ photoanode. © 2015 American Chemical Society.

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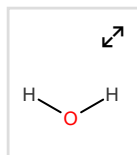
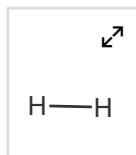
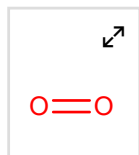
Topic: Bismuth Vanadium Tetraoxide | Water Splitting | Cathodes

Prominence percentile: 99.967



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Nanoenhanced Materials for Photolytic Hydrogen Production

Engineering uncontrolled terms: Cathodic photocurrent Photocorrosion Power conversion efficiencies Simulated sunlight Sunlight radiation Two electrode cells Water reduction Water splitting

Engineering main heading: Thin films

EMTREE drug terms: cadmium sulfide copper indium indium sulfide platinum sulfide tin unclassified drug water zinc

EMTREE medical terms: Article degradation electrode film sunlight

Chemicals and CAS Registry Numbers:

cadmium sulfide, 1306-23-6; copper, 15158-11-9, 7440-50-8; indium, 7440-74-6; platinum, 7440-06-4; sulfide, 18496-25-8; tin, 14314-35-3, 7440-31-5; water, 7732-18-5; zinc, 7440-66-6, 14378-32-6

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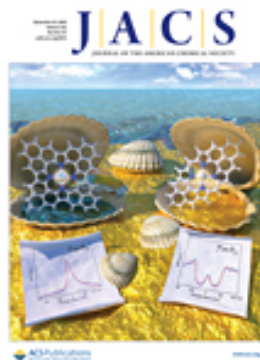
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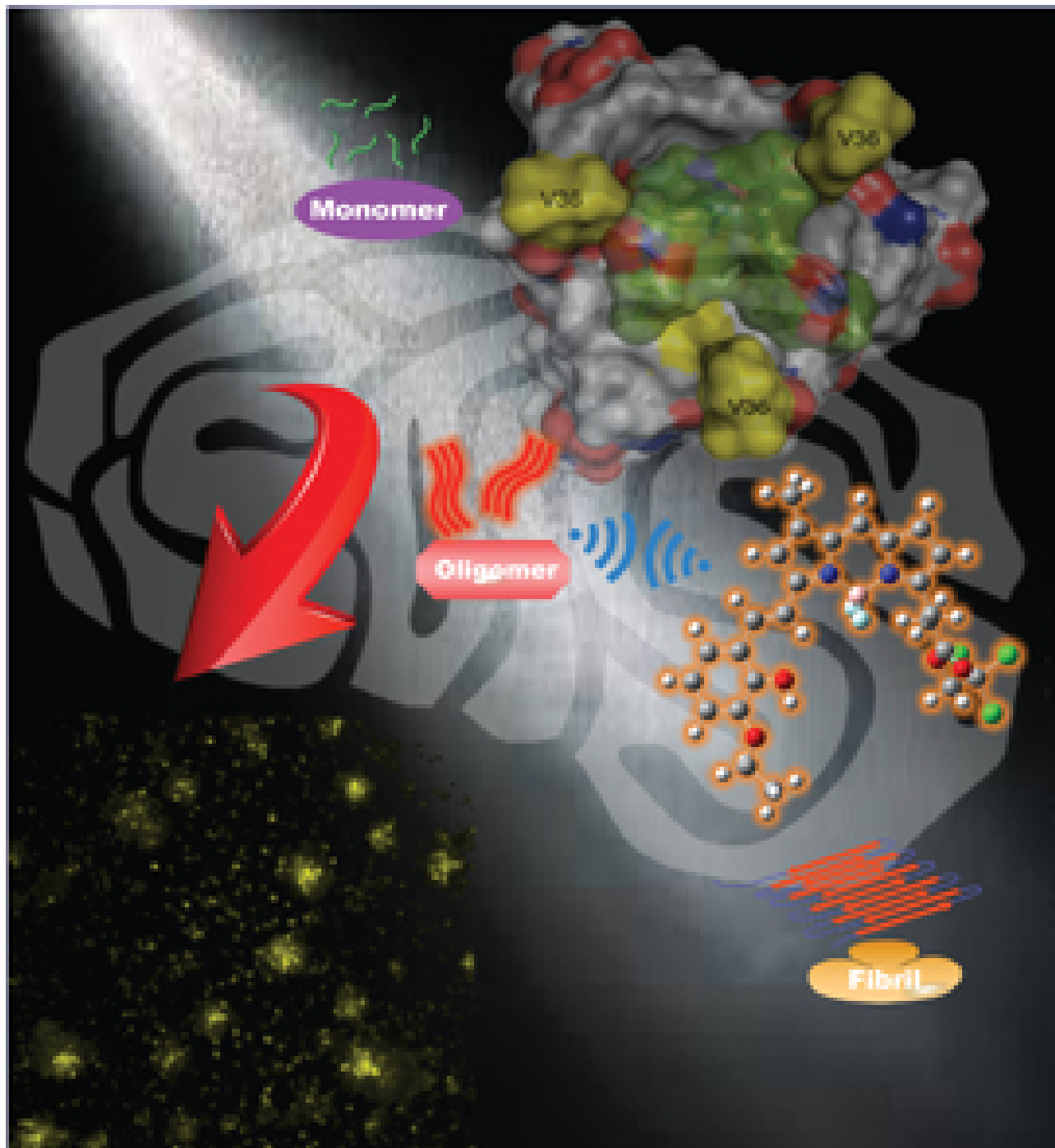


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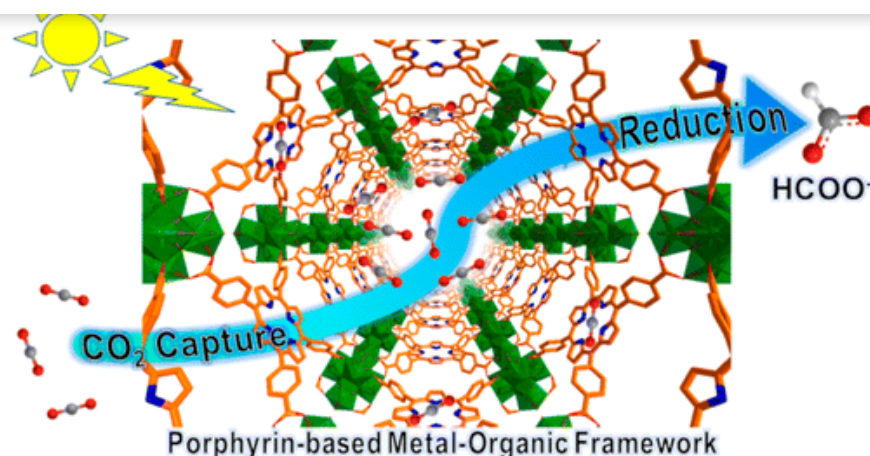
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Hai-Qun Xu, Jiahua Hu, Dengke Wang, Zhaohui Li, Qun Zhang*, Yi Luo, Shu-Hong Yu, and Hai-Long Jiang*

Journal of the American Chemical Society 2015, 137, 42, 13440-13443 (Communication)

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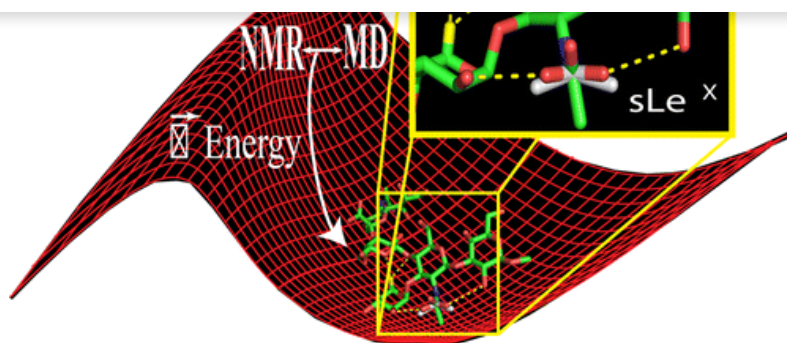
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Uncovering Nonconventional and Conventional Hydrogen Bonds in Oligosaccharides through NMR Experiments and Molecular Modeling: Application to Sialyl Lewis-X

Marcos D. Battistel, Hugo F. Azurmendi, Martin Frank, and Darón I. Freedberg*

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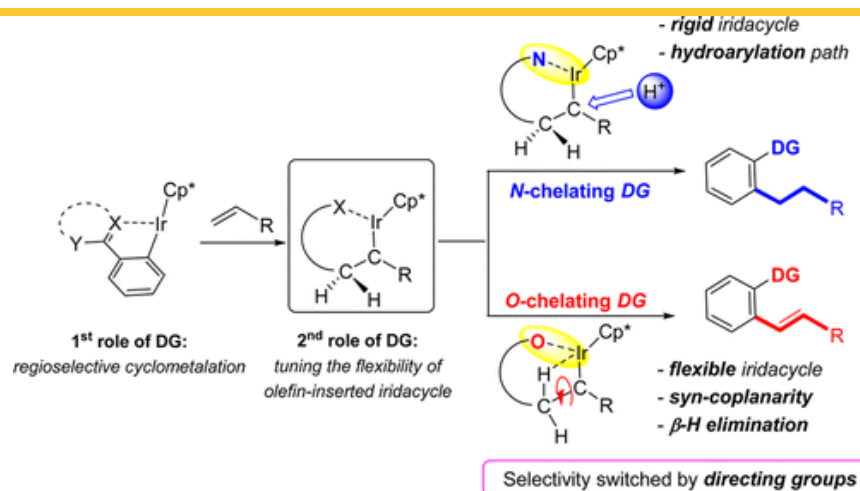
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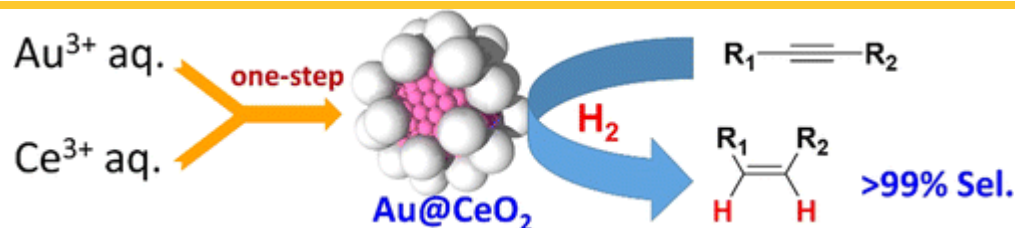
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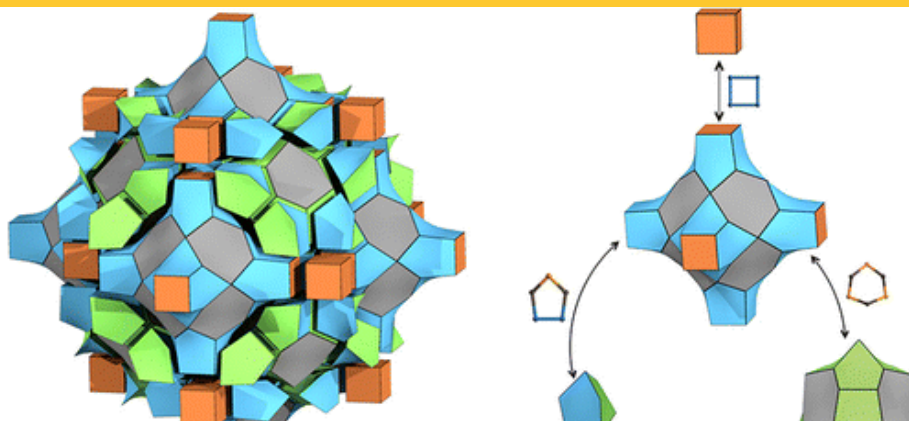
Takato Mitsudome, Masaaki Yamamoto, Zen Maeno, Tomoo Mizugaki, Koichiro Jitsukawa, and Kiyotomi Kaneda*

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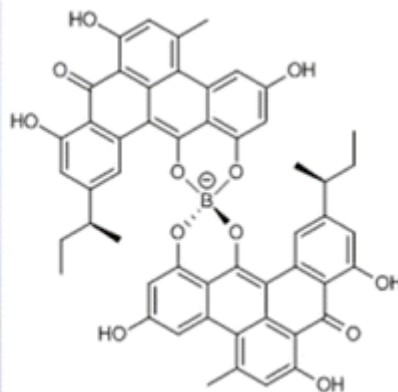
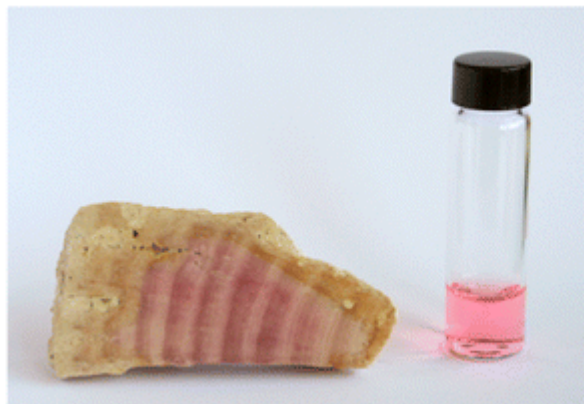


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Klaus Wolkenstein*, Han Sun, Heinz Falk, and Christian Griesinger

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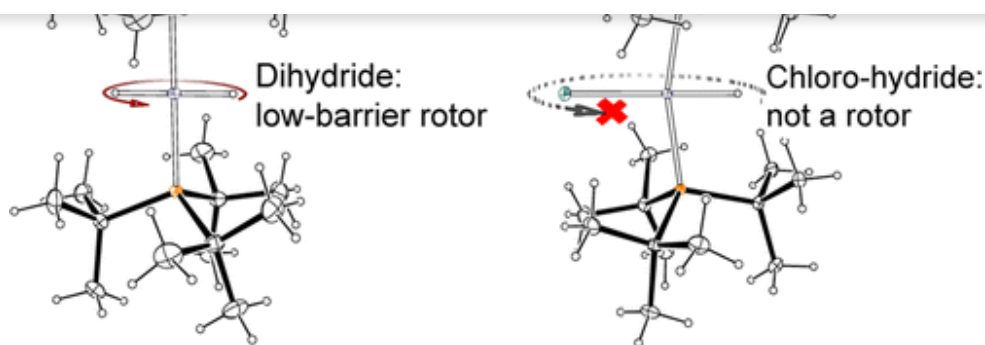
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A Molecular Rotor Possessing an H–M–H “Spoke” on a P–M–P “Axle”: A Platinum(II) *trans*-Dihydride Spins Rapidly Even at 75 K

Ernest Prack, Christopher A. O’Keefe, Jeremy K. Moore, Angel Lai, Alan J. Lough, Peter M. Macdonald, Mark S. Conradi, Robert W. Schurko*, and Ulrich Fekl*

Journal of the American Chemical Society 2015, 137, 42, 13464-13467 (Communication)

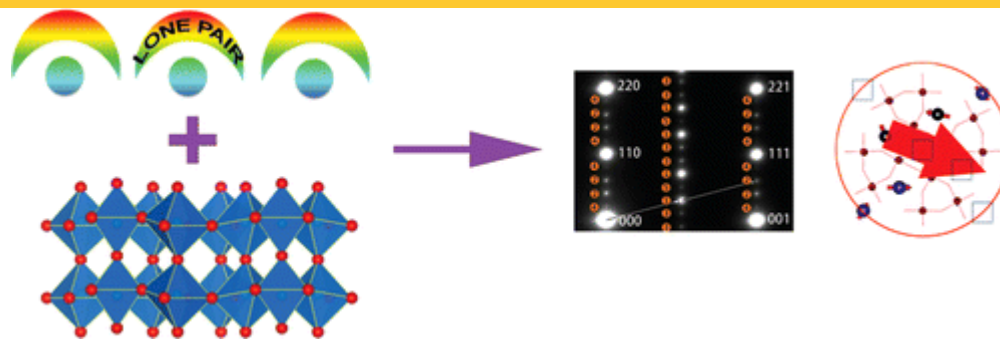
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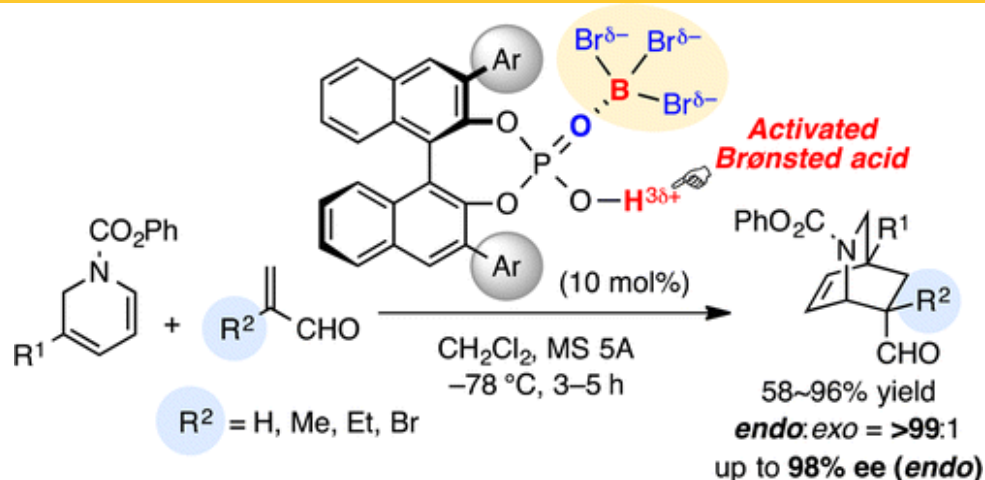
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Boron Tribromide-Assisted Chiral Phosphoric Acid Catalyst for a Highly Enantioselective Diels–Alder Reaction of 1,2-Dihydropyridines

Manabu Hatano, Yuta Goto, Atsuto Izumiseki, Matsujiro Akakura, and Kazuaki Ishihara*

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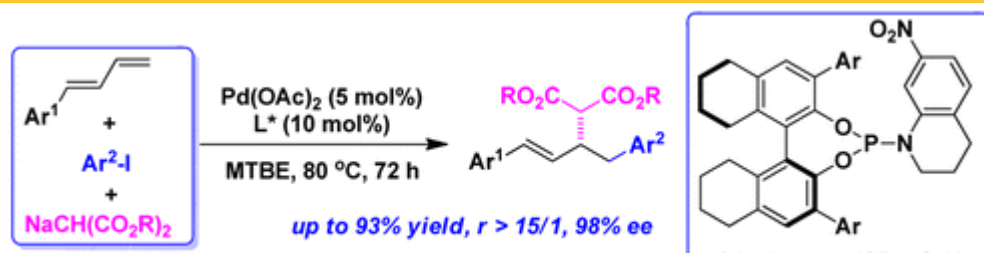
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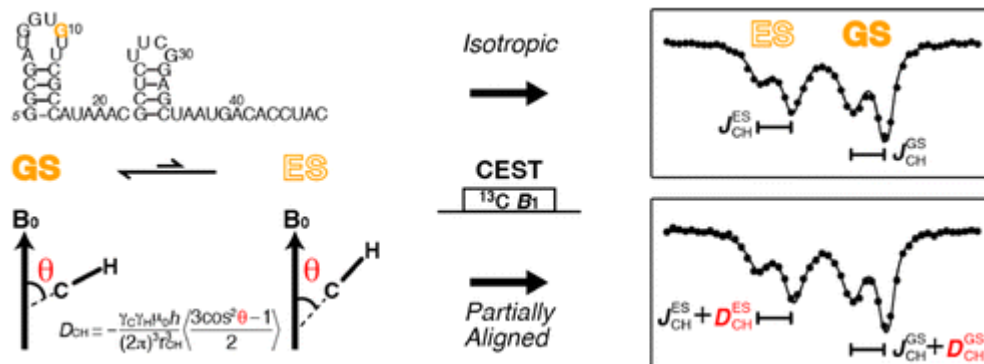


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Measuring Residual Dipolar Couplings in Excited Conformational States of Nucleic Acids by CEST NMR Spectroscopy

Bo Zhao and Qi Zhang*

Journal of the American Chemical Society 2015, 137, 42, 13480-13483 (Communication)

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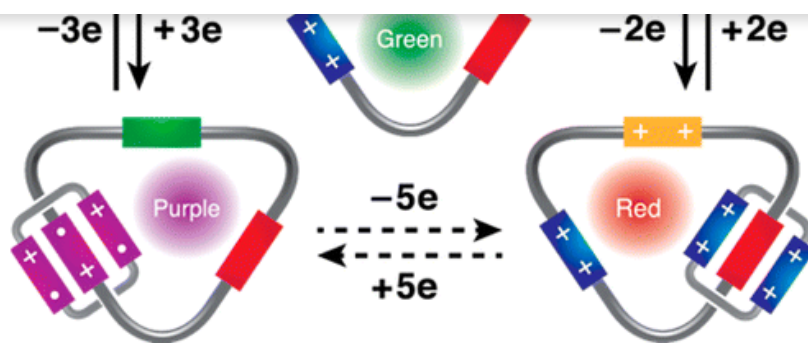
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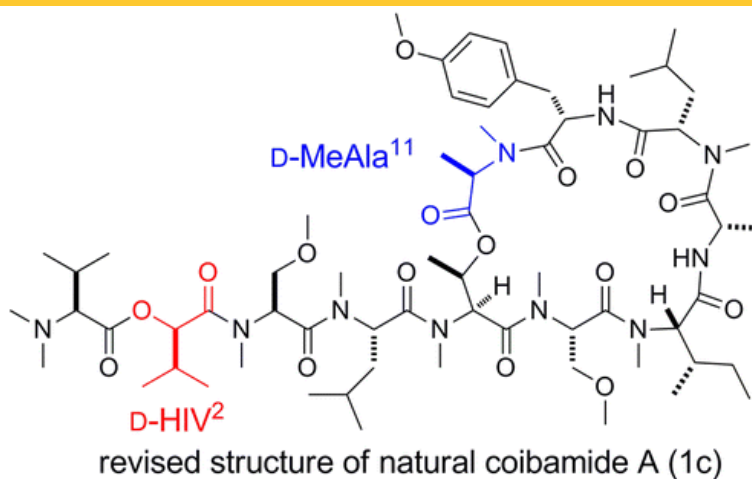
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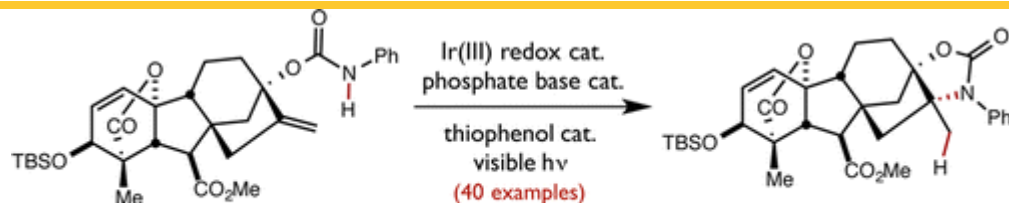
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David C. Miller, Gilbert J. Choi, Hudson S. Orbe, and Robert R. Knowles*

Journal of the American Chemical Society 2015, 137, 42, 13492-13495 (Communication)

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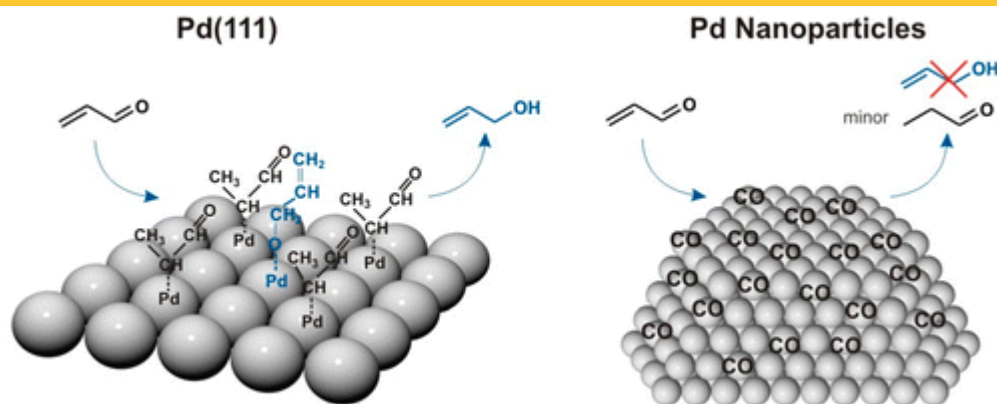
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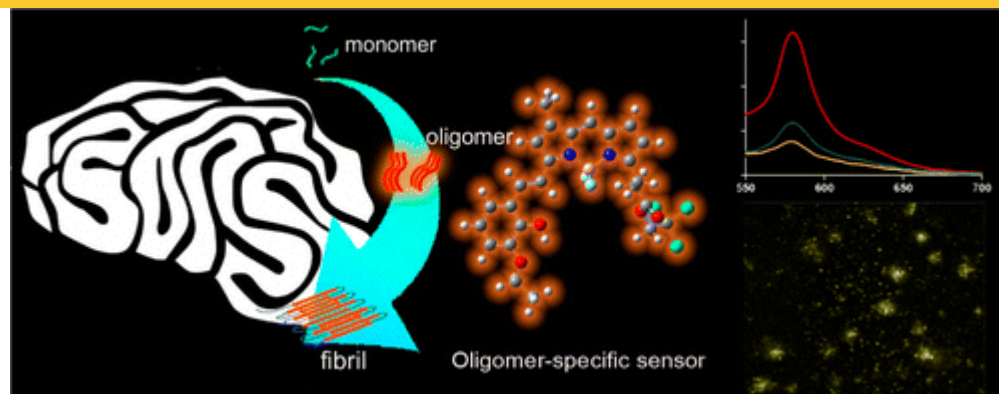


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Chemical Fluorescent Probe for Detection of A β Oligomers

Chai Lean Teoh, Dongdong Su, Srikanta Sahu, Seong-Wook Yun, Eleanor Drummond, Frances Prelli, Sulgi Lim, Sunhee Cho, Sihyun Ham*, Thomas Wisniewski*, and Young-Tae Chang*

Journal of the American Chemical Society 2015, 137, 42, 13503-13509 (Article)

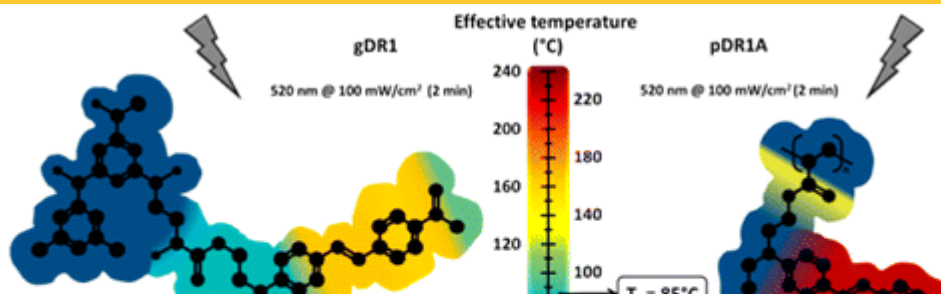
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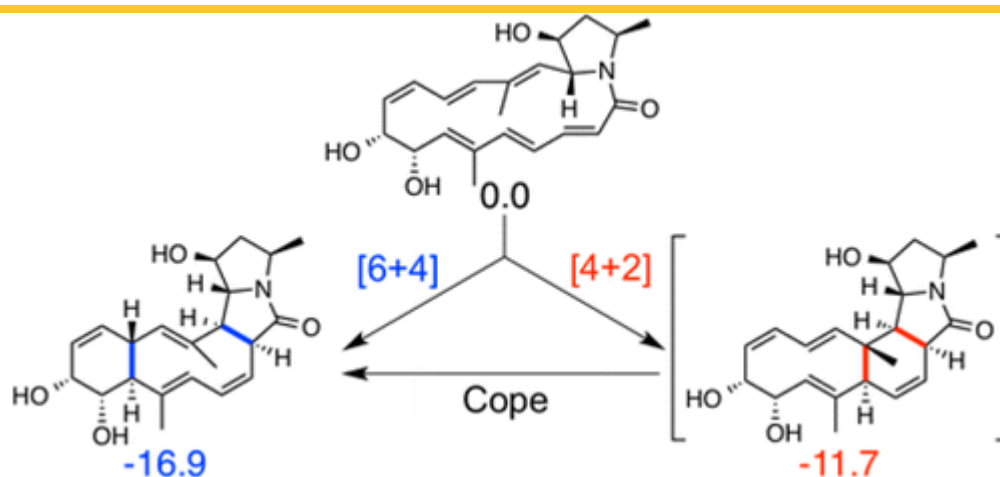
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Transannular [6 + 4] and Ambimodal Cycloaddition in the Biosynthesis of Heronamide A

Peiyuan Yu, Ashay Patel, and K. N. Houk*

Journal of the American Chemical Society 2015, 137, 42, 13518-13523 (Article)

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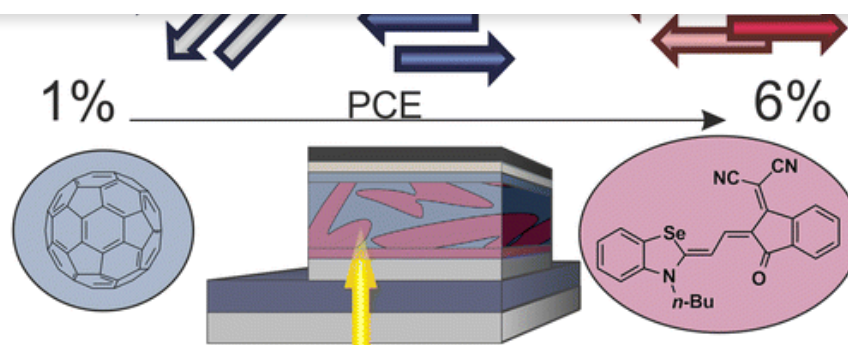
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Alhama Arjona-Esteban, Julian Krumrain, Andreas Liess, Matthias Stolte, Lizhen Huang, David Schmidt, Vladimir Stepanenko, Marcel Gsänger, Dirk Hertel, Klaus Meerholz*, and Frank Würthner*

Journal of the American Chemical Society 2015, 137, 42, 13524-13534 (Article)

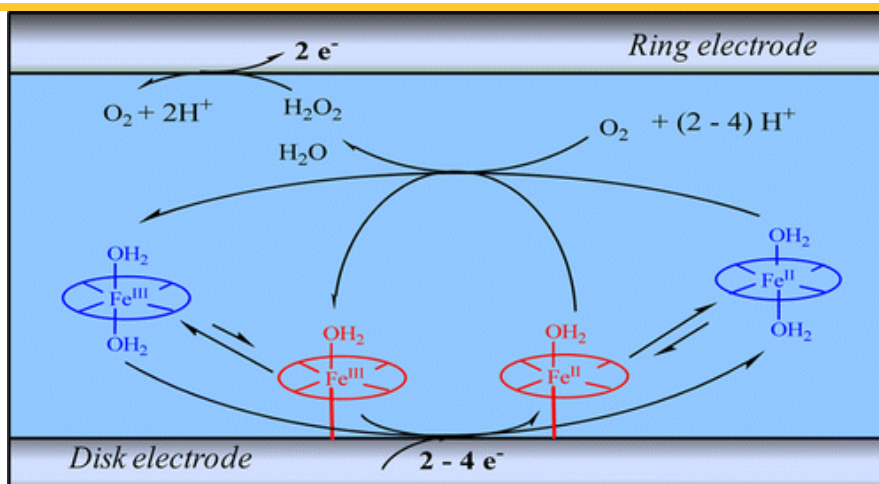
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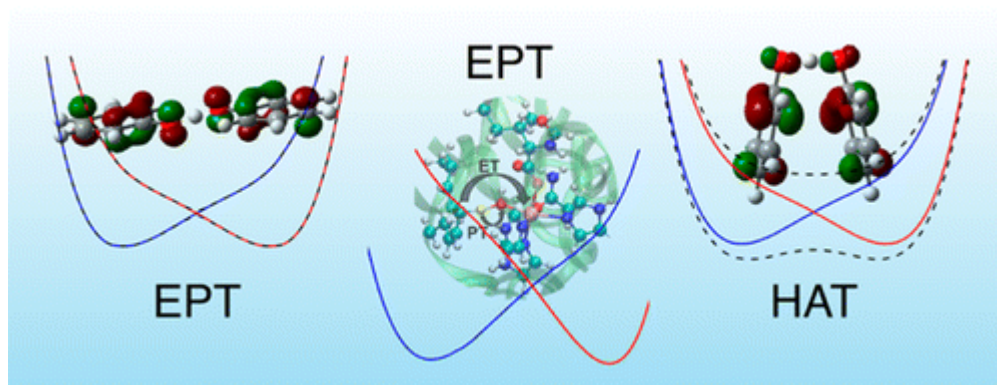
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Dependence of Vibronic Coupling on Molecular Geometry and Environment: Bridging Hydrogen Atom Transfer and Electron–Proton Transfer

Aparna Karippara Harshan, Tao Yu, Alexander V. Soudackov, and Sharon Hammes-Schiffer*

Journal of the American Chemical Society 2015, 137, 42, 13545-13555 (Article)

Publication Date (Web): September 27, 2015 

 Abstract

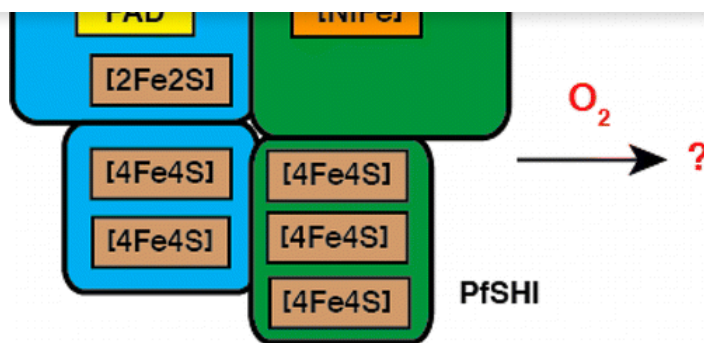
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The [NiFe]-Hydrogenase of *Pyrococcus furiosus* Exhibits a New Type of Oxygen Tolerance

Patrick Kwan, Chelsea L. McIntosh, David P. Jennings, R. Chris Hopkins, Sanjeev K. Chandrayan, Chang-Hao Wu, Michael W. W. Adams, and Anne K. Jones*

Journal of the American Chemical Society 2015, 137, 42, 13556-13565 (Article)

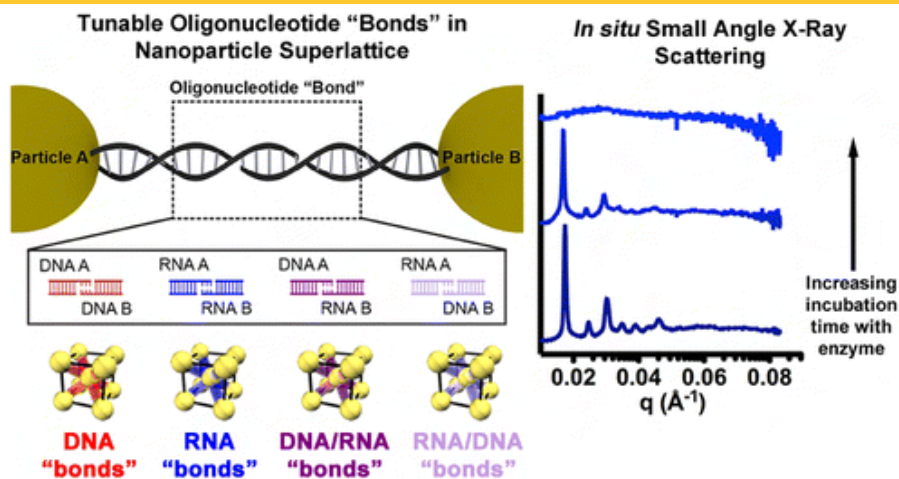
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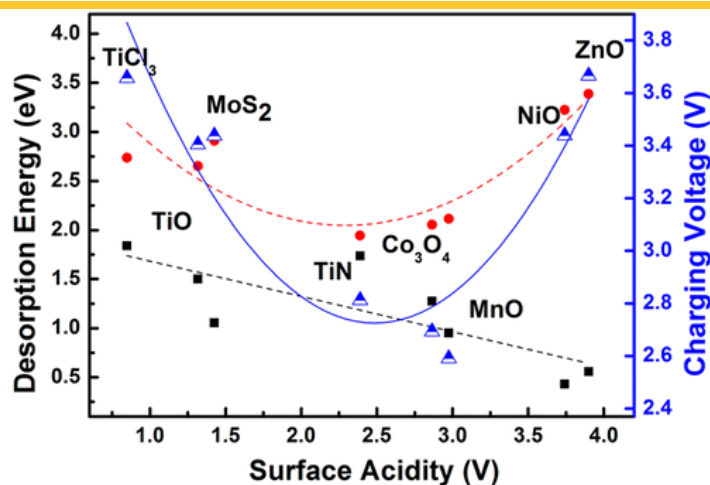
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Surface Acidity as Descriptor of Catalytic Activity for Oxygen Evolution Reaction in Li-O₂ Battery

Jinzhen Zhu, Fan Wang, Beizhou Wang, Youwei Wang, Jianjun Liu*, Wenqing Zhang*, and Zhaoyin Wen*

Journal of the American Chemical Society 2015, 137, 42, 13572-13579 (Article)

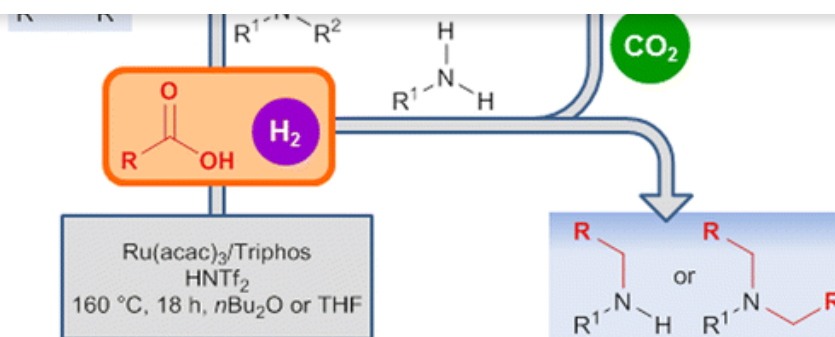
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Catalytic N-Alkylation of Amines Using Carboxylic Acids and Molecular Hydrogen

Iván Sorribes, Jose R. Cabrero-Antonino, Cristian Vicent, Kathrin Junge, and Matthias Beller*

Journal of the American Chemical Society 2015, 137, 42, 13580-13587 (Article)

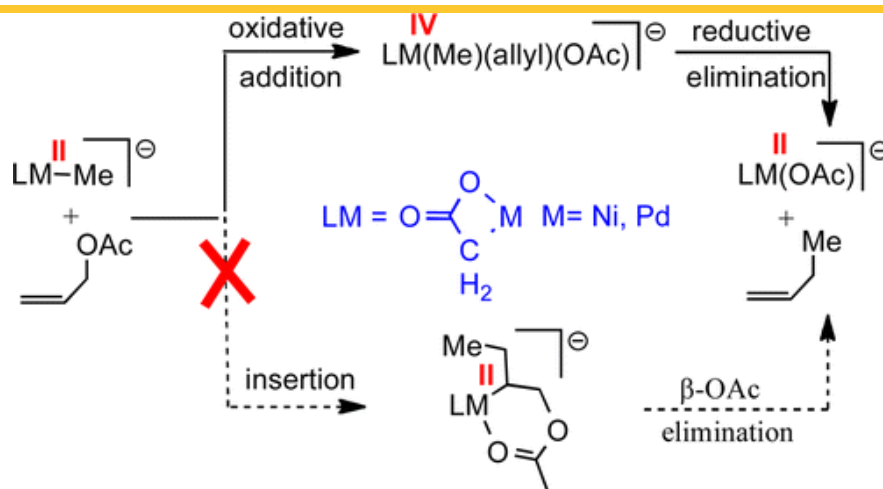
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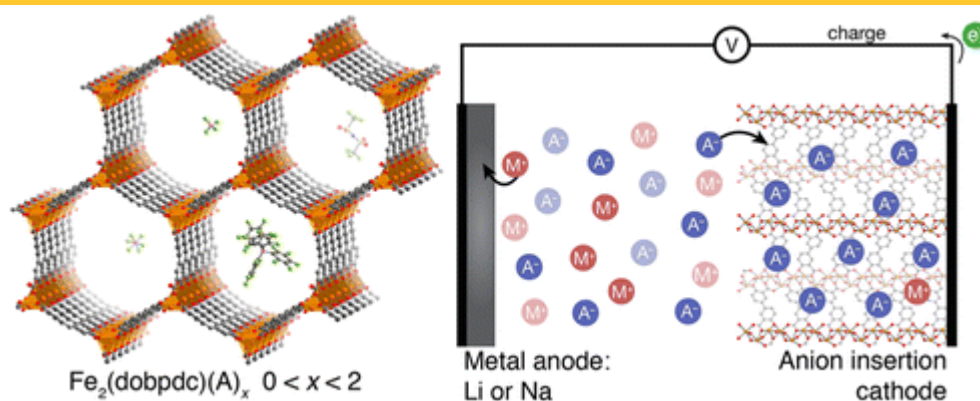


Cyclohexene and Computational Study of Identical Nickel and Palladium

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A Dual-Ion Battery Cathode via Oxidative Insertion of Anions in a Metal–Organic Framework

Michael L. Aubrey and Jeffrey R. Long*

Journal of the American Chemical Society 2015, 137, 42, 13594-13602 (Article)

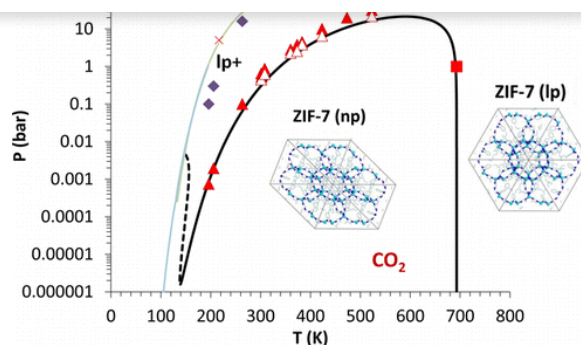
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New High- and Low-Temperature Phase Changes of ZIF-7: Elucidation and Prediction of the Thermodynamics of Transitions

Yi Du*, Bradley Wooler, Meghan Nines, Pavel Kortunov, Charanjit S. Paur, John Zengel, Simon C. Weston, and Peter I. Ravikovitch*

Journal of the American Chemical Society 2015, 137, 42, 13603-13611 (Article)

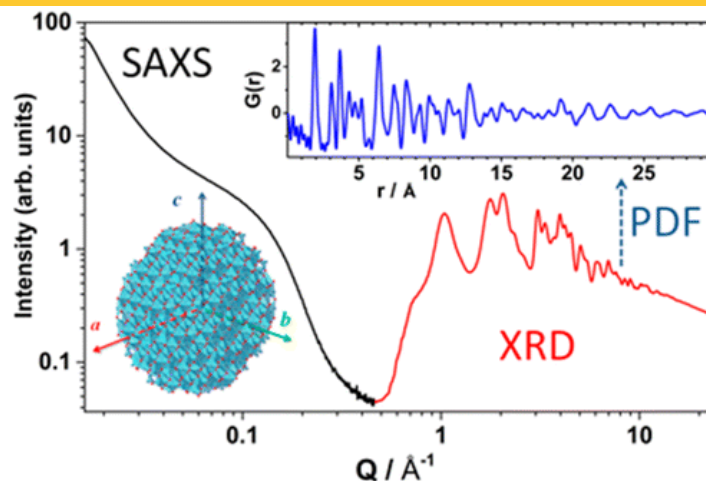
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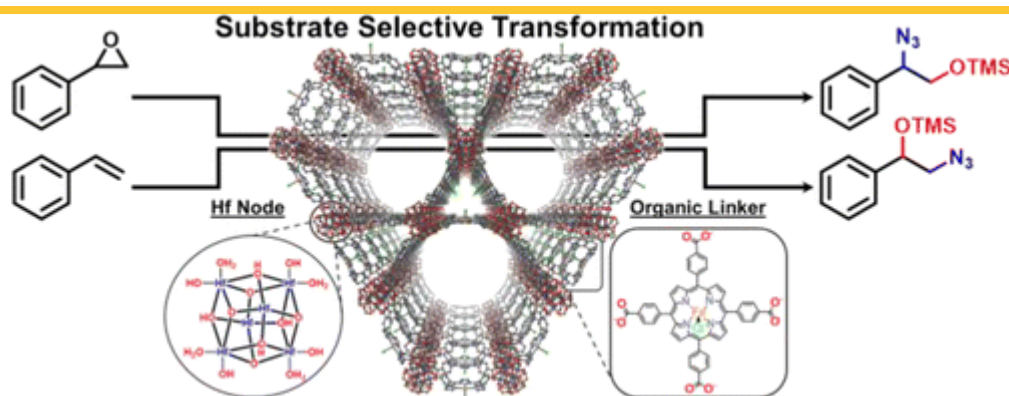
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A Hafnium-Based Metal–Organic Framework as a Nature-Inspired Tandem Reaction Catalyst

M. Hassan Beyzavi, Nicolaas A. Vermeulen, Ashlee J. Howarth, Samat Tussupbayev, Aaron B. League, Neil M. Schweitzer, James R. Gallagher, Ana E. Platero-Prats, Nema Hafezi, Amy A. Sarjeant, Jeffrey T. Miller, Karena W. Chapman, J. Fraser Stoddart*, Christopher J. Cramer*, Joseph T. Hupp*, and Omar K. Farha*

Journal of the American Chemical Society 2015, 137, 42, 13624-13631 (**Article**)

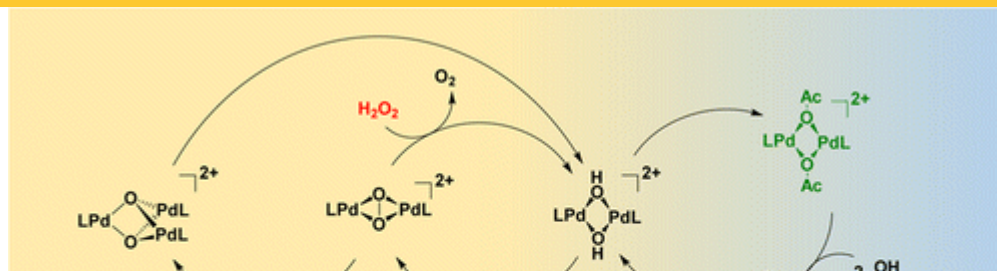
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Andrew J. Ingram, Katherine L. Walker, Richard N. Zare, and Robert M. Waymouth*

Journal of the American Chemical Society 2015, 137, 42, 13632-13646 (Article)

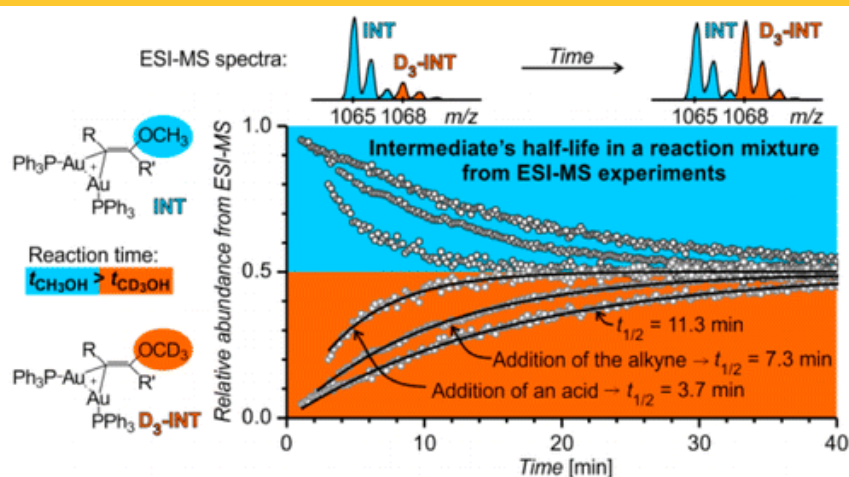
Publication Date (Web): October 7, 2015

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Reaction Intermediates Kinetics in Solution Investigated by Electrospray Ionization Mass Spectrometry: Diaurated Complexes

Lucie Jašíková, Mariarosa Anania, Simona Hybelbauerová, and Jana Roithová*

Journal of the American Chemical Society 2015, 137, 42, 13647-13657 (Article)

Publication Date (Web): October 2, 2015

 Abstract

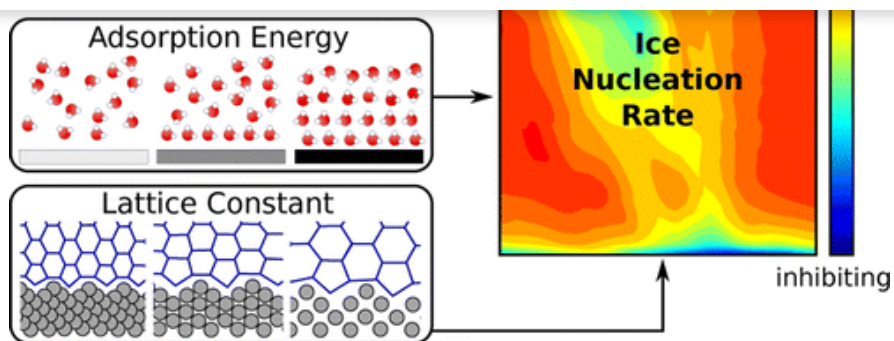
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The Many Faces of Heterogeneous Ice Nucleation: Interplay Between Surface Morphology and Hydrophobicity

Martin Fitzner, Gabriele C. Sosso, Stephen J. Cox, and Angelos Michaelides*

Journal of the American Chemical Society 2015, 137, 42, 13658-13669 (Article)

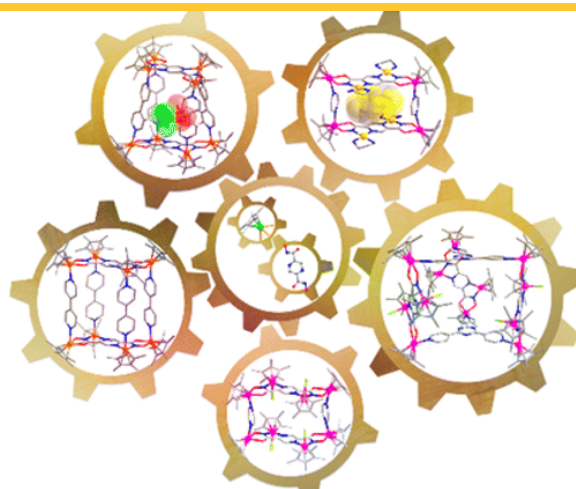
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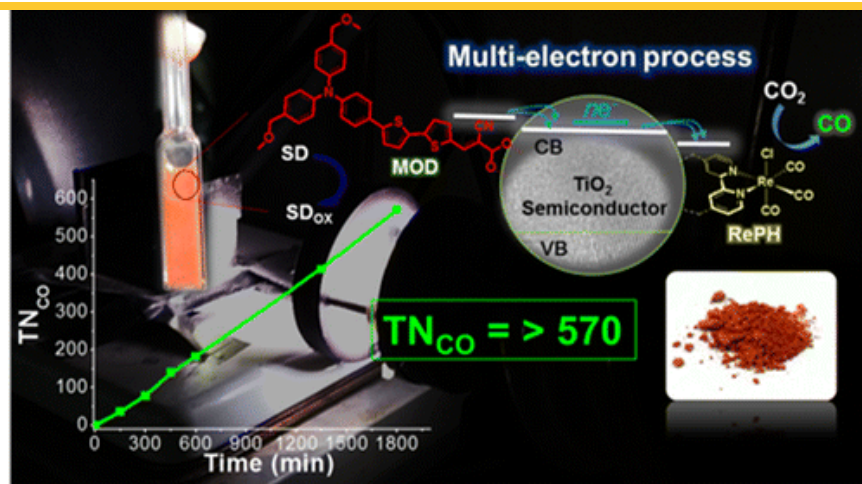


Rational Design of Polynuclear Organometallic Assemblies from a Simple

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Highly Robust Hybrid Photocatalyst for Carbon Dioxide Reduction: Tuning and Optimization of Catalytic Activities of Dye/ TiO_2 /Re(I) Organic–Inorganic Ternary Systems

Dong-Il Won, Jong-Su Lee, Jung-Min Ji, Won-Jo Jung, Ho-Jin Son*, Chyongjin Pac*, and Sang Ook Kang*

Journal of the American Chemical Society 2015, 137, 42, 13679-13690 (Article)

Publication Date (Web): October 10, 2015

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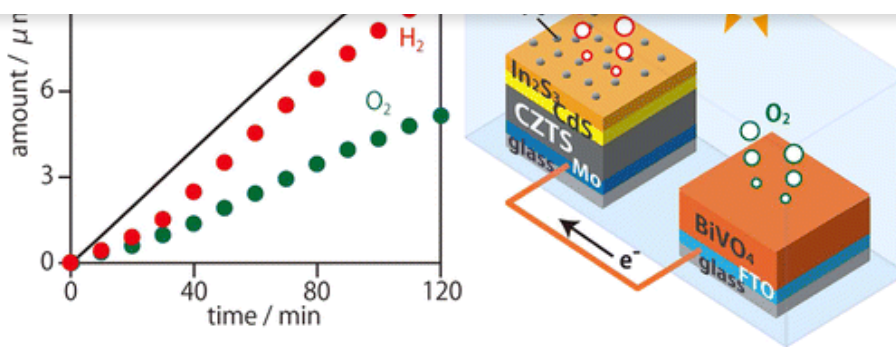
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Pt/In₂S₃/CdS/Cu₂ZnSnS₄ Thin Film as an Efficient and Stable Photocathode for Water Reduction under Sunlight Radiation

Feng Jiang, [Gunawan](#), Takashi Harada, Yongbo Kuang, Tsutomu Minegishi, Kazunari Domen, and Shigeru Ikeda*

Journal of the American Chemical Society 2015, 137, 42, 13691-13697 (Article)

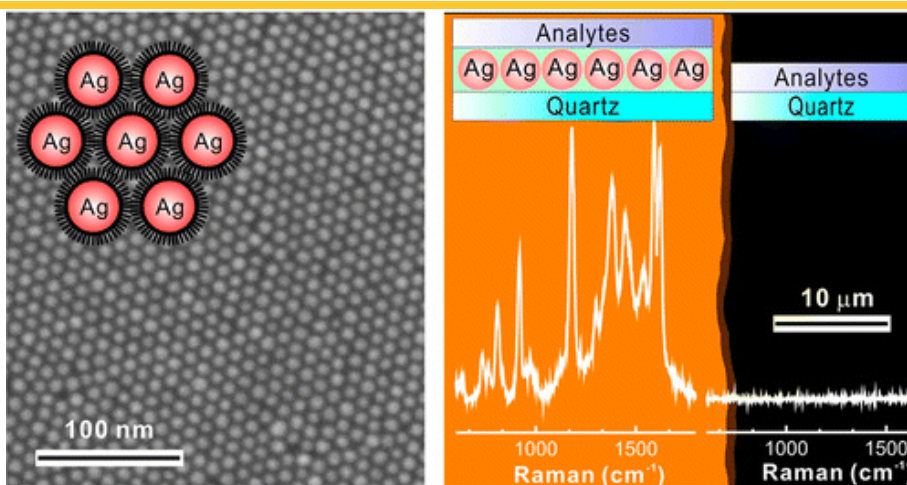
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Large Scale Hot Spot Engineering for Quantitative SERS at the Single Molecule

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Total Synthesis of Atisane-Type Diterpenoids: Application of Diels–Alder Cycloadditions of Podocarpane-Type Unmasked *ortho*-Benzoquinones

Liqiang Song, Guili Zhu, Yongjiang Liu, Bo Liu*, and Song Qin

Journal of the American Chemical Society 2015, 137, 42, 13706-13714 (Article)

Publication Date (Web): October 4, 2015

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(4+1) vs (4+2): Catalytic Intramolecular Coupling between Cyclobutanones and Trisubstituted Allenes via C–C Activation

Xuan Zhou and Guangbin Dong*

Journal of the American Chemical Society 2015, 137, 42, 13715-13721 (Article)

Publication Date (Web): October 6, 2015

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Journal of the American Chemical Society 2015, 137, 42, 13722 (Addition/Correction)

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A Dual-Ion Battery Cathode via Oxidative Insertion of Anions in a Metal–Organic Framework

Michael L. Aubrey^{†‡} and Jeffrey R. Long^{*†‡}**Hide Author Information** ^[†] Department of Chemistry, University of California, Berkeley, California 94720, [United States](#)[‡] Materials Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, California 94720, United States*E-mail: jrlong@berkeley.edu **Cite this:** *J. Am. Chem. Soc.* 2015, 137, 42, 13594–13602Publication Date: October 5, 2015 <https://doi.org/10.1021/jacs.5b08022>

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Reaction Intermediates Kinetics in Solution Investigated by Electrospray Ionization Mass Spectrometry: Diaurated Complexes

Lucie Jašíková, Mariarosa Anania, Simona Hybelbauerová, and Jana Roithová*

Hide Author Information ^Department of Organic Chemistry, Faculty of Science, Charles University in Prague, Hlavova 2030/8, 12843 Prague 2, [Czech Republic](#)

*roithova@natur.cuni.cz

 **Cite this:** *J. Am. Chem. Soc.* 2015, 137, 42, 13647–13657Publication Date: October 2, 2015 <https://doi.org/10.1021/jacs.5b08744>

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