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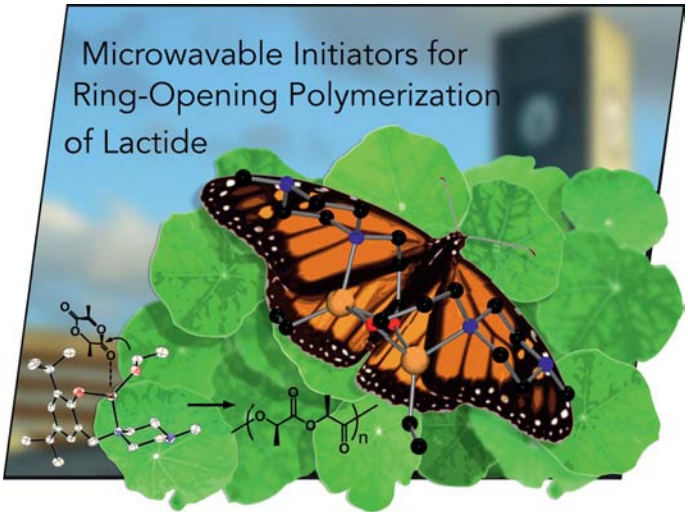
COVER PICTURE

The cover picture shows a butterfly-shaped dimetallic alkylzinc complex reported by researchers at Memorial University, which is shown in the background. The complex, reported in the article by F. M. Kerton et al. on p. 5347ff, can be readily converted to an alkoxide species. This initiates ring-opening polymerization of *rac*-lactide and ε-caprolactone under conventional heating or upon microwave irradiation. Financial support from the Publication Subvention Program of Memorial University of Newfoundland is acknowledged.



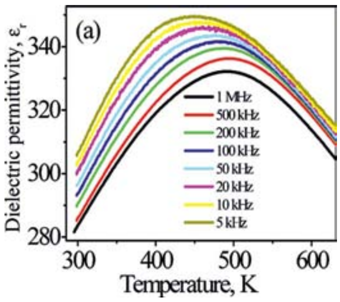
SHORT COMMUNICATION

Relaxor Materials

T. Sivakumar,* M. Itoh* **5343–5346**

Relaxor Behavior in a New Aurivillius Oxide – $Bi_2La_{0.5}Sr_{0.5}Nb_{1.75}Sc_{0.25}O_9$

Keywords: Aurivillius oxides / Relaxor behavior / Dielectric properties / Perovskite phases / Solid-state structures



A new oxide, $Bi_2La_{0.5}Sr_{0.5}Nb_{1.75}Sc_{0.25}O_9$ (**I**), crystallizes in the polar $A2_1am$ space group at room temperature. The relaxor behavior of **I** was characterized by using dielectric, piezoelectric, and ferroelectric measurements. The relaxation parameter (γ), piezoelectric coefficient (d_{33}), and remanent polarization (P_r) for **I** are 1.91, 3 pC/N, and 5.7 μC/cm^2, respectively.

FULL PAPERS

Zinc Complexes

N. Ikpo, L. N. Saunders, J. L. Walsh,
J. M. B. Smith, L. N. Dawe,
F. M. Kerton* **5347–5359**

Zinc Complexes of Piperazinyl-Derived Aminephenolate Ligands: Synthesis, Characterization and Ring–Opening Polymerization Activity

Keywords: Ring-opening polymerization / Polymerization / Zinc / Carbon dioxide / Lactide / Caprolactone

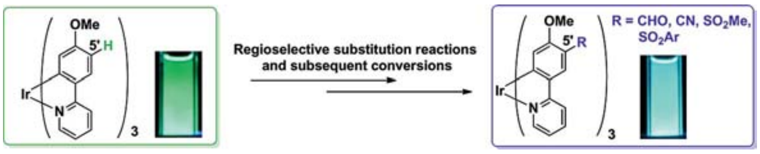
New Zn^{II} complexes have been prepared and structurally characterized, including a rare example of a dimetallic Zn species containing *cis*-alkyl groups. Their reactivities in both solution and bulk polymerizations of *rac*-lactide and ε-caprolactone are presented, including in reactions conducted under microwave conditions. Interestingly, the behaviours of these complexes are different to their morpholinyl analogues.

Luminescent Ir Complexes

Y. Hisamatsu, S. Aoki* **5360–5369**

Design and Synthesis of Blue-Emitting Cyclometalated Iridium(III) Complexes Based on Regioselective Functionalization

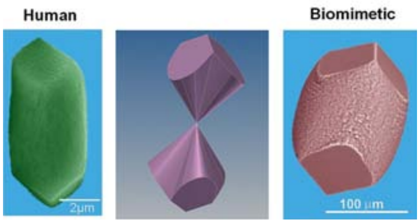
Keywords: Luminescence / Iridium / Synthesis design / Substituent effects



Blue-emitting *fac*-[Ir(mppy)$_3$] [mppy = 2-(4′-methoxyphenyl)pyridine] derivatives have been prepared by regioselective substitution reactions and subsequent conversions. The introduction of electron-withdrawing groups such as CHO, CN, and sulfonyl groups (SO_2Me, SO_2Ar) at the 5′-position of the mppy portion induces a considerable blueshift of luminescence emission in organic solvents.

Calcite–Gelatine Composites

The comparative study of otoconia-shaped calcite–gelatine composites and human otoconia based on in vitro experiments, electron microscopy and X-ray investigations reveals a detailed picture of the 3D structure and morphogenesis of the materials. Their peculiar inner architecture is characterised by a dumbbell-shaped mass/density distribution.



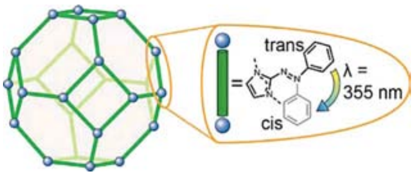
P. Simon, W. Carrillo-Cabrera, Y.-X. Huang, J. Buder, H. Borrmann, R. Cardoso-Gil, E. Rosseeva, Yu. Yarin, T. Zahnert, R. Kniep* **5370–5377**

Structural Relationship between Calcite–Gelatine Composites and Biogenic (Human) Otoconia

Keywords: Biomimetic synthesis / Biomineralization / Organic-inorganic composites / Structure determination / Human otoconia / Calcite

Photoswitchable MOF

A microporous zinc imidazolate compound that contains photoswitchable organic linker molecules is reported. The synthesis can be carried out by conventional or microwave-assisted heating as well as using ultrasound. The *trans–cis* isomerization of the azophenyl groups can be achieved by irradiation with UV light. UV/Vis spectroscopy demonstrates the partial reversibility of the switching process.



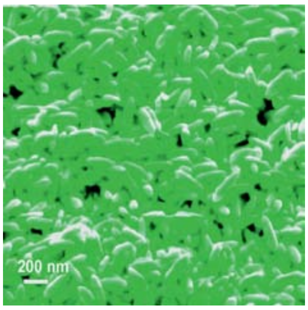
S. Bernt, M. Feyand, A. Modrow, J. Wack, J. Senker, N. Stock* **5378–5383**

$[Zn(C_3H_3N_2)(C_3H_2N_2{-}N{=}N{-}C_6H_5)]$, a Mixed-Linker ZIF Containing a Photoswitchable Phenylazo Group

Keywords: Metal-organic frameworks / Microporous materials / Structure elucidation / Optical switching / High-throughput methods

Nanoparticles

Monodisperse single-crystalline Fe_3O_4 nanorice has been synthesized by a one-pot, surfactant-assisted hydrothermal method.



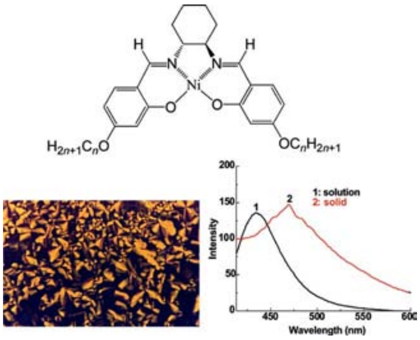
R. Rajendran*, R. Muralidharan, R. Santhana Gopalakrishnan, M. Chellamuthu,* S. U. Ponnusamy, E. Manikandan **5384–5389**

Controllable Synthesis of Single-Crystalline Fe_3O_4 Nanorice by a One-Pot, Surfactant-Assisted Hydrothermal Method and Its Properties

Keywords: Hydrothermal synthesis / Nanostructures / Nanoparticles / Magnetic properties / Vibrational properties / Magnetite

Emissive Metallomesogens

A series of blue-light emitting Ni^{II} Schiff-base complexes has been synthesized. The ligands lack mesomorphic properties, however, mesomorphism was induced upon complexation. Small-angle X-ray scattering (SAXS) revealed rectangular mesophase structures with *c*2*mm* symmetry.



C. R. Bhattacharjee,* G. Das, P. Mondal **5390–5396**

Photoluminescent Hemidisc-Shaped Liquid Crystalline Nickel(II) Schiff-Base Complexes

Keywords: Nickel / Metallomesogens / Liquid crystals / Luminescence / Photoluminescence / Density functional calculations

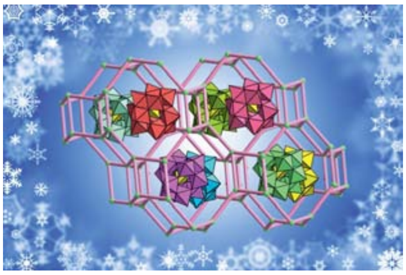
CONTENTS

Rare-Earth MOFs

S. Li, D. Zhang, Y. Guo, P. Ma, J. Zhao, J. Wang,* J. Niu* 5397–5404

A Series of 3D Rare-Earth-Metal–Organic Frameworks with Isolated Guest Keggin Silicotungstate Fragments as Anion Templates

Keywords: Silicotungstate / Polyoxometalates / Photoluminescence / Metal–organic frameworks / Rare earths



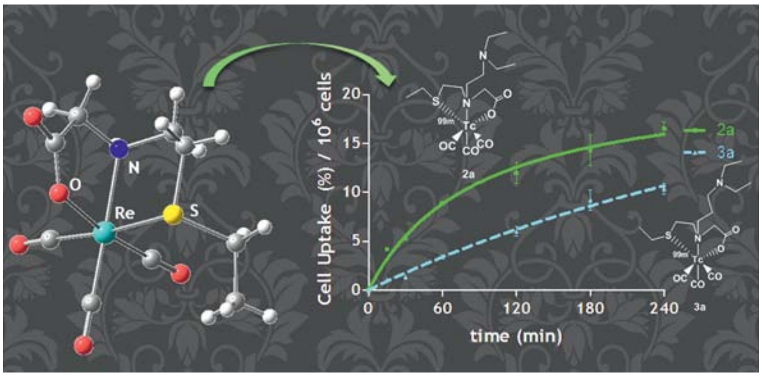
Six rare-earth-metal-constructed 3D metal–organic frameworks have been synthesized. The structural analyses indicate that **1**–**6** are basically isostructural and show a rare host 3D framework that contains Keggin polyoxoanions $[SiW_{12}O_{40}]^{4-}$ as templates. The photoluminescence measurements reveal that **6** shows obvious red luminescence.

Radiopharmaceuticals

C. Moura, L. Gano, I. C. Santos, I. Santos, A. Paulo* 5405–5413

$^{99m}Tc^{I}/Re^{I}$ Tricarbonyl Complexes with Tridentate Cysteamine Based Ligands: Synthesis, Characterization and in vitro/in vivo Evaluation

Keywords: Medicinal chemistry / Radiopharmaceuticals / Antitumor agents / Technetium / Rhenium / Carbonyl complexes / Bifunctional chelators / Melanin binders



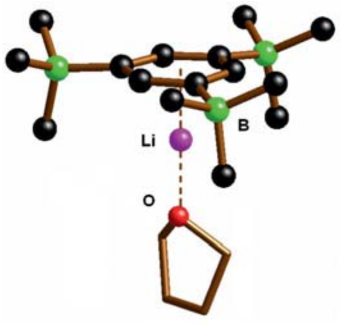
Treatment of *fac*-$[M(CO)_3(H_2O)_3]^+$ (M = Re, ^{99m}Tc) with a new S,N,O-donor ligand derived from cysteamine, 2-[2-(ethylthio)ethylamino]acetic acid (**L¹H**), leads to the formation of *fac*-$[M(\kappa^3\text{-}L^1)(CO)_3]$ [M = Re (**1**), ^{99m}Tc (**1a**)]. Ligand **L¹H** has been functionalized with a *N*,*N*-diethylamine group with ethylenic and propylenic linkers resulting in chelators **L²H** and **L³H**, respectively. These ligands coordinate to a *fac*-$[M(CO)_3]^+$ core to afford complexes of type *fac*-$[M(\kappa^3\text{-}L)(CO)_3]$.

Lithium–Arene Coordination

D. Franz, A. Haghiri Ilkhechi, M. Bolte, H.-W. Lerner, M. Wagner* 5414–5421

A Quest for Ligand-Unsupported $Li^+-\pi$ Interactions in Mono-, Di-, and Tritopic Lithium Arylborates

Keywords: Lithium / Polyanions / Borates / Bridging ligands / Coordination modes



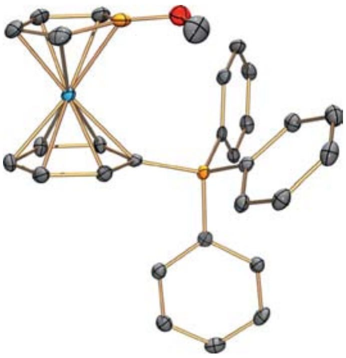
The attachment of three negatively charged trihydridoborate or trimethylborate substituents to a benzene ring leads to the formation of $Li^+-\pi$ complexes even in the presence of competing THF or 12-crown-4 ligands.

Borole Cobalt Complexes

D. A. Loginov, A. A. Pronin, Z. A. Starikova, A. V. Vologzhanina, P. V. Petrovskii, A. R. Kudinov* 5422–5429

(Methoxyborole)cobalt Complexes – Synthesis, Structures and Bonding

Keywords: Boron / Borole / Cobalt / Sandwich complexes



Visible-light irradiation of $[(\eta\text{-}C_4H_4BOMe)Co(\eta\text{-}C_6H_6)]^+$ causes the replacement of benzene by other ligands to give sandwich and half-sandwich complexes that contain the $[(\eta\text{-}C_4H_4BOMe)Co]^+$ fragment.

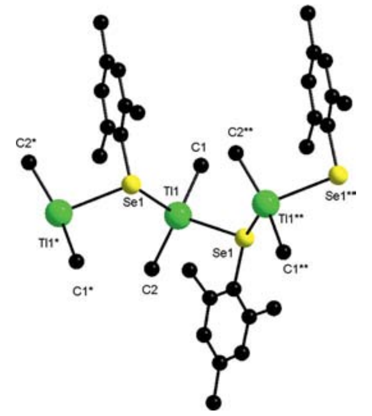
Diorganothallium Chalcogenolates

G. G. Briand,* A. Decken, N. M. Hunter, J. A. Wright, Y. Zhou .... 5430−5436

A Structural Investigation of Dimethylthallium(III) Thiolate and Selenolate Rings and Polymers

Keywords: Thallium / Selenium / S ligands / Se ligands / Structure elucidation / Chalcogens

The reaction of Me_3Tl with a series of thio- and selenophenols afforded the compounds $[(Me_2TlER')]_n$ {where E = S, Se; R′ = C_6H_5, [2,(4),6-$Me_3C_6H_2$], (2,4,6-tBu$_3$-C_6H_2)}. X-ray structural analysis showed dimeric or polymeric structures by means of the intermolecular Tl···E bonding interactions.

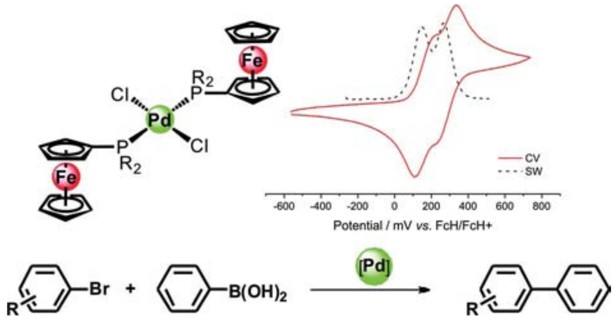


Metallocenylphosphane Catalysts

B. Milde, M. Lohan, C. Schreiner, T. Rüffer, H. Lang* .... 5437−5449

(Metallocenylphosphane)palladium Dichlorides − Synthesis, Electrochemistry and Their Application in C−C Coupling Reactions 💻

Keywords: Ferrocene / Palladium / Phosphanes / C−C coupling / Electrochemistry



The synthesis of metallocenylphosphanes of the type PR_2Mc and $Se{=}PR_2Mc$ and their palladium complexes $[PdCl_2(PR_2Mc)_2]$ is discussed. Their electrochemical properties and catalytic behavior in C−C cross-coupling reactions is investigated. The results of the catalytic reactions can be correlated with the electronic properties of the free phosphanes ($J_{^{31}P^{77}Se}$).

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* Author to whom correspondence should be addressed.

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