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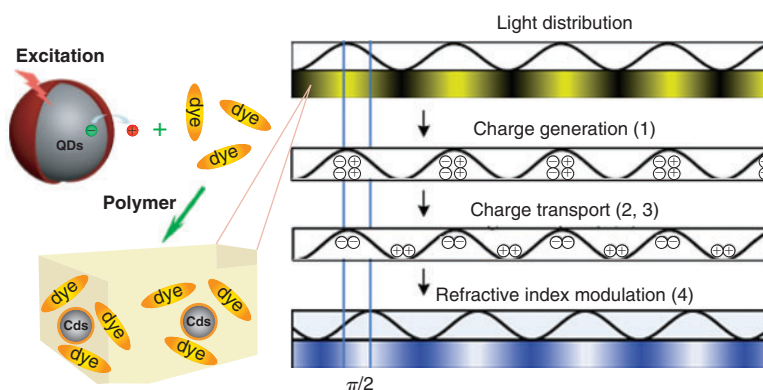
Review

Nanoparticle-Based Photorefractive Polymers

Xiangping Li, James W. M. Chon,
Min Gu

Aust. J. Chem. **2008**, *61*, 317–323.

The inclusion of nanoparticles into photorefractive polymers has greatly enhanced the impact of the photorefractivity owing to the broad spectroscopic tuning range and the high photogeneration efficiency of the nanoparticles. In this review, the merit and functionality of nanoparticle-dispersed photorefractive materials are summarized and their application under two-photon excitation for three-dimensional optical data storage as well as other photonic devices is also discussed.



Rapid Communications

Rapid Synthesis of *O,O'*-Dialkyl Alkylphosphonates on TLC with Analytical Purity for the Verification Analysis of Chemical Weapons Convention

Hemendra K. Gupta, Deepak Pardasani,
Arvind K. Gupta, Rajiv Jain,
D. K. Dubey

Aust. J. Chem. **2008**, *61*, 324–328.

Thin-layer chromatography (TLC)-supported synthesis provides an efficient, eco-friendly, and virtually solvent-free alternative synthetic tool to solution-phase chemistry. Esters of alkylphosphonic acids, the markers of toxic nerve agents, are synthesized from alcohols and phosphonic acids using TLC as solid support under microwave irradiation. This synthetic technique can be of immense help to prepare reference chemicals of analytically pure grade for quality control, pharmaceutical and analytical laboratories.

Entrapment of an Ionic Liquid in a Metallic Silver Matrix through Precipitation

Marie-Alexandra Neouze,
Marco Litschauer

Aust. J. Chem. **2008**, *61*, 329–331.

The synthesis of a new hybrid material consisting of an ionic liquid within a silver matrix is described. The entrapment takes place by means of physical caging resulting from a precipitation reaction. Characterization of this new composite material indicates entrapment efficiency at 98%, calculated based on the ionic liquid.

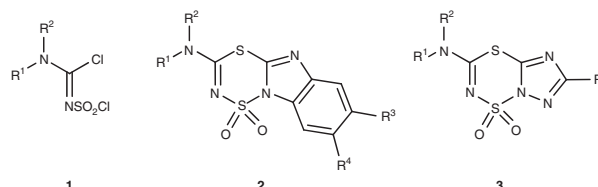
Full Papers

***N,N*-Dialkyl-*N'*-Chlorosulfonyl Chloroformamidines in Heterocyclic Synthesis. VI The Preparation of Some Fused [1,4,2,6]Dithiadiazine Dioxides**

Teresa Cablewski, Craig L. Francis,
Andris J. Liepa

Aust. J. Chem. **2008**, 61, 332–341.

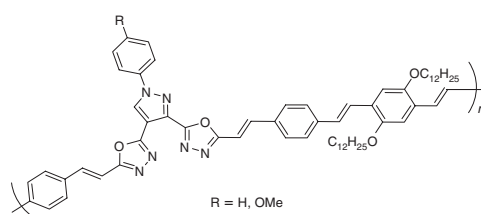
In a further demonstration of the versatility of *N,N*-dialkyl-*N'*-chlorosulfonylchloroformamidines **1** in the synthesis of novel heterocyclic ring systems, the preparation and characterization of some [1,4,2,6]dithiadiazino[2,3-*a*]benzimidazoles **2** and triazolo[2,3-*b*] [1,4,2,6]dithiadiazines **3** via the reaction of **1** with 2-mercaptobenzimidazoles and 3-mercapto[1,2,4]triazoles, respectively, is reported. Both **2** and **3** are derivatives of hitherto unknown ring systems.


Synthesis, Optical Properties, and Characterization of New Soluble Conjugated Poly(*p*-phenylenevinylene) Derivatives Constituted of Alternating Pyrazole and 1,3,4-Oxadiazole Moieties

En-Ming Chang, Cheng-Tien Lee,
Chun-Yen Chen, Fung Fuh Wong,
Mou-Yung Yeh

Aust. J. Chem. **2008**, 61, 342–349.

Two new soluble polymers that contain 1,3,4-oxadiazole and pyrazole rings along the main core have been synthesized by 1,3-dipolar addition, dehydration, and a Heck coupling reaction and determined to be potential efficient blue-greenish electroluminescent materials. The electron affinity was estimated as 2.76–2.81 eV and the polymers were luminescent with an emission maxima around 530–540 nm in solution and about 570 nm in a thin film.


Synthesis, and Cyclization to Aurones and Flavones, of Alkoxy-Substituted Aryl, Arylalkynyl Ketones

Penelope J. Kerr, Simon M. Pyke,
A. David Ward

Aust. J. Chem. **2008**, 61, 350–358.

The development of methods that can be used to prepare the antioxidant catechins found in tea is an area of considerable interest. We have established that the cyclization of suitably substituted aryl, arylalkynyl ketones and related compounds can lead to flavones and aurones, or separable mixtures of the two types. These products should be capable of further modification to give these antioxidant compounds as well as providing similar compounds that may also have these properties.

Carbohydrate-Based Tollylsulfonyl Hydrazines: Effective Catalysts for the Mannich Reaction and the Syntheses of Bisindolylalkanes in Water

Peng Wu, Yiqian Wan, Jiwen Cai

Aust. J. Chem. **2008**, 61, 359–363.

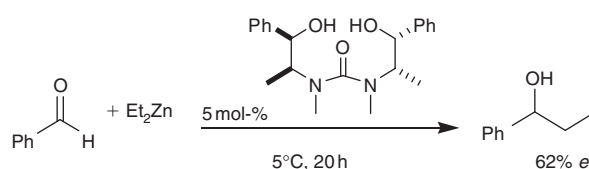
Organic reactions carried out in aqueous media are of great interest and remain an important research area in green chemistry. Three carbohydrate-based tolylsulfonyl hydrazines were used to catalyze the three-component Mannich reaction and the adduct reaction of aldehyde and indole to prepare bisindolylalkanes and β -amino carbonyl frameworks in water, and an environmentally benign synthesis was developed.

Synthesis of Novel Chiral (Thio)ureas and Their Application as Organocatalysts and Ligands in Asymmetric Synthesis

Marcos Hernández-Rodríguez,
Claudia Gabriela Avila-Ortiz,
Jorge M. del Campo, Delia
Hernández-Romero, María J.
Rosales-Hoz, Eusebio Juaristi

Aust. J. Chem. **2008**, 61, 364–375.

Several novel chiral (thio)ureas were prepared, which showed potential as efficient Lewis basic organocatalysts in aldol reactions and epoxide ring opening reactions. This paper describes the in-depth characterization of several of the ureas and thioureas and the X-ray crystallographic analyses thereof. This detailed structural work will be of use to others working in the field of urea design not only for organocatalysis but also hydrogen-bonding motifs and supramolecular chemistry.

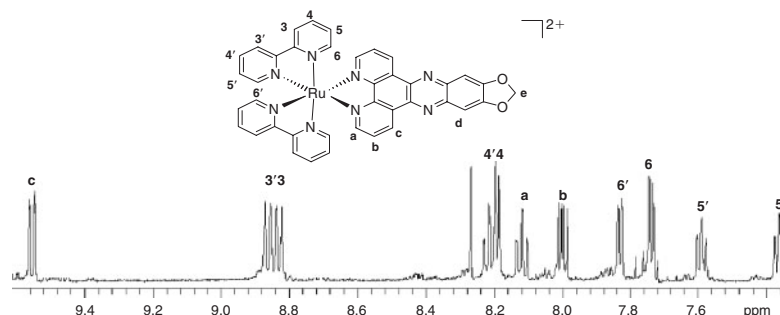


DNA-Binding and Photocleavage Behaviour of $[\text{Ru}(\text{bpy})_2(\text{MDPZ})]^{2+}$

Lifeng Tan, Hui Chao, Junjie Fei,
Guojun Su, Sheng Zhang, Yue Xia,
Liangnian Ji

Aust. J. Chem. **2008**, 61, 376–381.

The development of new molecular sensory devices has initiated vigorous interest in the syntheses of various responsive molecules whose light emission can be switched by various stimuli. The emission of transition metal complexes switched by DNA is rare. A systematic study of the interactions of metal complexes with DNA is necessary to find a sensitive luminescent probe for DNA.

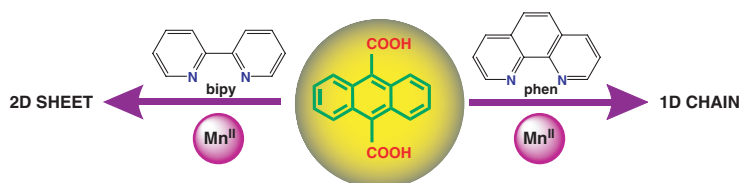


Manganese(II) Complexes with a Bulky Anthracene-Based Dicarboxylic Ligand: Syntheses, Crystal Structures, and Magnetic Properties

Chun-Sen Liu, E. Carolina Sañudo,
Jun-Jie Wang, Ze Chang, Li-Fen Yan,
Xian-He Bu

Aust. J. Chem. **2008**, 61, 382–390.

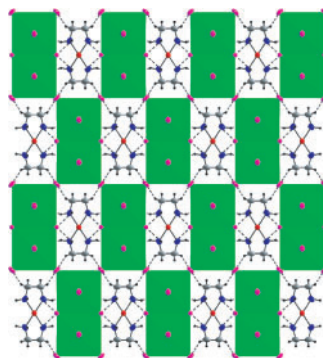
Two new Mn^{II} coordination complexes comprised of two-dimensional sheet and one-dimensional chain structures have been synthesized by using the bulky anthracene-9,10-dicarboxylic acid (H_2L) and incorporating different 2,2'-bipyridyl-like chelating ligands. The bulky aromatic skeleton of H_2L appears to play an important role in the formation of complexes **1** and **2**. The magnetic properties of the complexes have been investigated in detail.



Incorporating a Transition Metal Complex into Polymeric Iodoplumbate: Structure Characterization, Properties and Theoretical Study of a Unprecedented Hybrid Semiconductor: $\{[\text{Cu}(\text{en})_2][\text{Pb}_2\text{I}_6]\}_n$

Hao-Hong Li, Ling-Guo Sun,
Zhi-Rong Chen, Yun-Jie Wang,
Jun-Qian Li

Aust. J. Chem. **2008**, 61, 391–396.

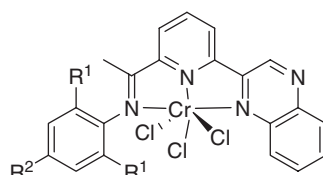


A hybrid incorporated transition metal complex exhibits interesting semiconductor properties. Theoretical calculations disclose that the observed spectra can be assigned to the charge transfer among the inorganic iodoplumbate network, which paves the way for functional design.

Synthesis, Characterization, and Ethylene Oligomerization and Polymerization by 2-Quinoxaliny-6-iminopyridine Chromium Chlorides

Saliu A. Amolegbe, Maliha Asma,
Min Zhang, Gang Li, Wen-Hua Sun

Aust. J. Chem. **2008**, 61, 397–403.



Chromium catalysts have been commercialized both for polymerization and trimerization of ethylene. A series of 2-quinoxaliny-6-iminopyridine chromium(III) trichlorides were synthesized and characterized. Activated with methylaluminoxane (MAO), the chromium complexes showed high activities for ethylene oligomerization and polymerization.