HUNGARY ITALY GERMANY GREECE
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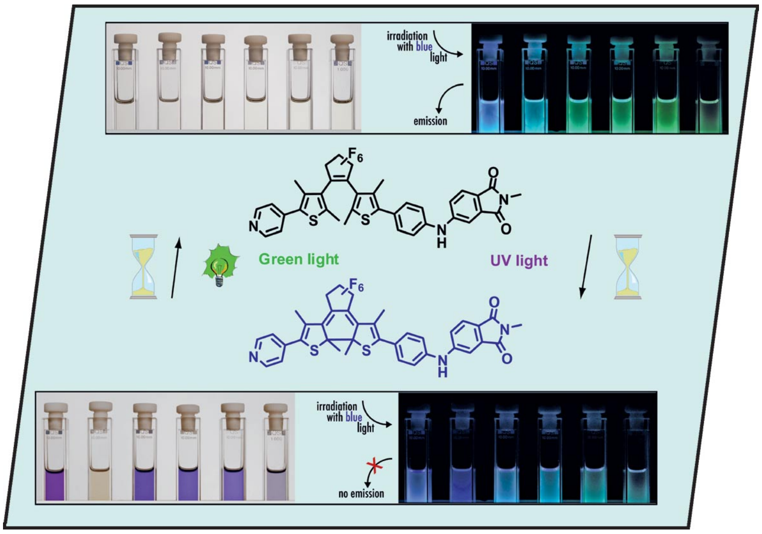
The EUChemSoc Societies have taken the significant step into the future by merging their traditional journals, to form two leading chemistry journals, the *European Journal of Inorganic Chemistry* and the *European Journal of Organic Chemistry*. Three further EUChemSoc Societies (Austria, Czech Republic and Sweden) are Associates of the two journals.

COVER PICTURE

The cover picture shows the light-induced changes of a newly designed photochromic, fluorescent, and solvatochromic compound. The open isomer (top) is colorless and fluorescent. Its emission changes from blue to yellow-green with increasing polarity of the solvent (in the picture: cyclohexane, tetrachloromethane, benzene, toluene, xylene, and dioxane, from left to right). The closed isomer (bottom) is blue and nonemissive (for clarity, the picture was taken with some amount of the open isomer remaining). UV and visible (green) light interconverts both isomers. As a result, the dye provides multiple readout signals: color changes, on/off switching of the fluorescence signal, and the color of the emission that can be used to sense changes in the polarity of the microenvironment. Detailed synthesis and properties are reported in the article by M. L. Bossi et al. on p. 2531ff. Irene Böttcher-Gajewski (MPI for Biophysical Chemistry) is acknowledged for the photographical content of the cover picture.



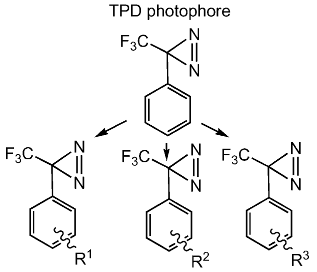
MICROREVIEW

Photoaffinity Labeling

M. Hashimoto,* Y. Hatanaka ... 2513–2523

Recent Progress in Diazirine-Based Photoaffinity Labeling

Keywords: Photoaffinity labeling / Chemical biology / Bioorganic chemistry / Structure–activity relationships / Diazirine



3-Phenyl-3-(trifluoromethyl)diazirine (TPD) is one of the most suitable photophores for photoaffinity labeling. The diazirinyl photophore is stable under many synthetic conditions. These observations prompted us to perform post-functional derivatizations of TPD.

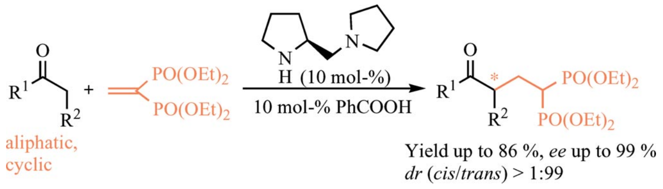
SHORT COMMUNICATION

Asymmetric Organocatalysis

M. T. Barros,*
A. M. Faísca Phillips* 2525–2529

Enamine Catalysis in the Synthesis of Chiral Structural Analogues of *gem*-Bisphosphonates Known To Be Biologically Active

Keywords: *gem*-Bisphosphonates / Organocatalysis / Asymmetric synthesis / Michael addition / Ketones



Chiral analogues of biologically active γ-keto bisphosphonates can be obtained from ketones and vinyl bisphosphonate by an organocatalytic asymmetric Michael addition reaction in good yields and high stereoselectivity.

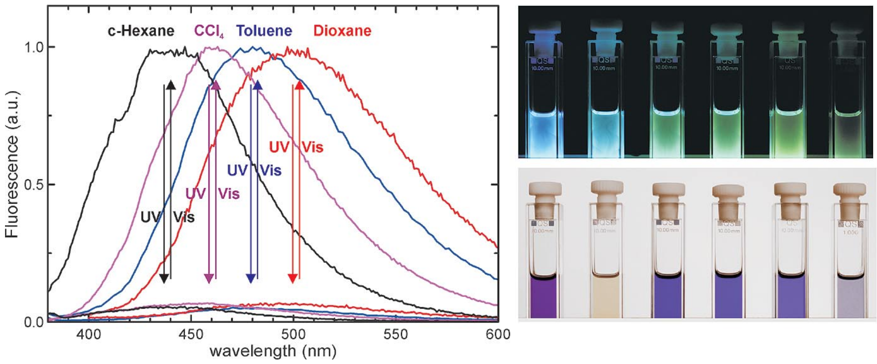
FULL PAPERS

Switchable Fluorescent Probes

S. F. Yan, V. N. Belov, M. L. Bossi,*
S. W. Hell 2531–2538

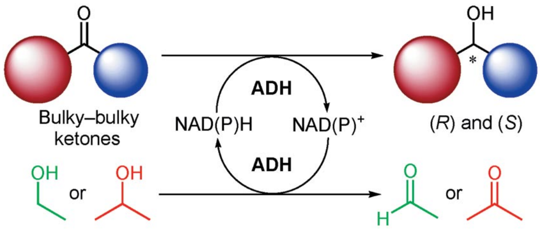
Switchable Fluorescent and Solvatochromic Molecular Probes Based on 4-Amino-*N*-methylphthalimide and a Photochromic Diarylethene

Keywords: Fluorescent probes / Photochromism / Solvatochromism / Molecular switches / 4-Aminophthalimide / Diarylethenes



New fluorescent probes, whose emission can be switched "on" and "off" photochemically, are also able to sense the polarity of the (micro)environment. The nature of the solvent produces a solvatochromic effect in the emission spectra, and affects the speed of the switching reaction.

Bulky Ketone Bioreductions



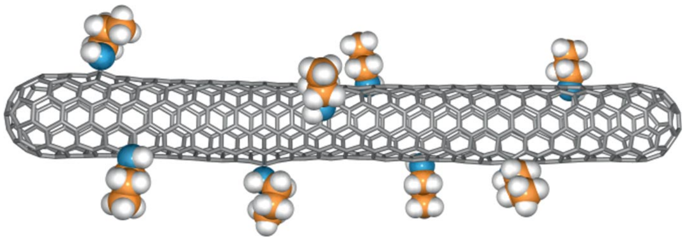
Biocatalysts suitable for the reduction of bulky aryl alkyl ketones have been identified. Simple alcohols can be used as a hydrogen donor in a "substrate-coupled" approach. Both enantiomers are accessible by using either *Rhodococcus ruber* DSM 44541 and ethanol or *Ralstonia* sp. DSM 6428 and *Sphingobium yanoikuyae* DSM 6900 and ethanol or 2-propanol as the hydrogen source.

I. Lavandera, G. Oberdorfer, J. Gross, S. de Wildeman, W. Kroutil* ... **2539–2543**

Stereocomplementary Asymmetric Reduction of Bulky–Bulky Ketones by Biocatalytic Hydrogen Transfer

Keywords: Enzymes / Ketones / Asymmetric catalysis / Reduction / Biotransformations

Carbon Nanotube Functionalization



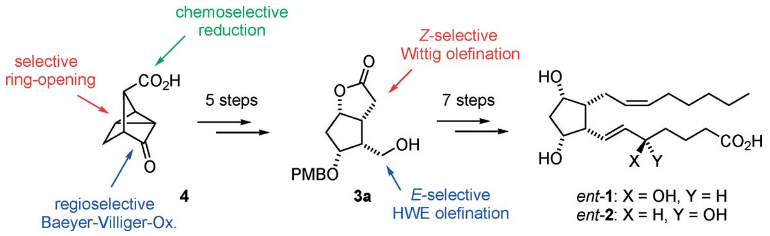
The synthesis and characterization of sidewall amino-functionalized single-walled carbon nanotube derivatives $(n\mathrm{PrNH})_n$-SWNTs is reported. The nucleophilic addition of in situ generated lithium *n*-propylamide to the sidewall of SWNTs and the subsequent reoxidation of charged intermediates of the type $(n\mathrm{PrNH})_n$-SWNT^{n-} leads to carbon nanotube derivatives with covalently attached amino groups.

Z. Syrgiannis, F. Hauke, J. Röhrl, M. Hundhausen, R. Graupner, Y. Elemes, A. Hirsch* **2544–2550**

Covalent Sidewall Functionalization of SWNTs by Nucleophilic Addition of Lithium Amides

Keywords: Carbon / Nanotubes / Functionalization / Lithium / Nucleophilic addition / Reactivity

Isoprostane Synthesis



The all-*cis* substituted Corey lactone analogue **3a** was synthesized by a five-step sequence starting from enantiomerically pure nortricyclanone **4**. Further application of this chiral building block is demonstrated in the total syntheses of two diastereomeric isoprostanes belonging to the 5-F_2 family (*ent*-**1** and *ent*-**2**).

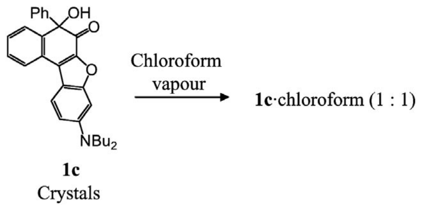
P. Elsner, P. Jetter, K. Brödner, G. Helmchen* **2551–2563**

Stereoselective Synthesis of a *cis*-1,2-Dialkylcyclopentane Building Block and Its Application in Isoprostane Synthesis (5-*ent*-F_{2c}-IsoP)

Keywords: Natural products / Stereoselective synthesis / Wittig reaction / Total synthesis / Protecting groups

Solid-State Fluorescence

The crystals of benzo[*b*]naphtho[1,2-*d*]furan-6-one-type fluorophore (**1**) exhibit sensitive colour and fluorescence changes upon enclathration of organic solvent molecules.



Y. Ooyama,* K. Yoshida* **2564–2570**

Heterocyclic Quinol-Type Fluorophores: Solid-State Fluorescence Change in Crystals of Benzo[*b*]naphtho[1,2-*d*]furan-6-one-Type Fluorophore upon Inclusion of Organic Solvent Molecules

Keywords: Fluorescence / Dyes / Inclusion compounds / Crystal structures / Oxygen heterocycles

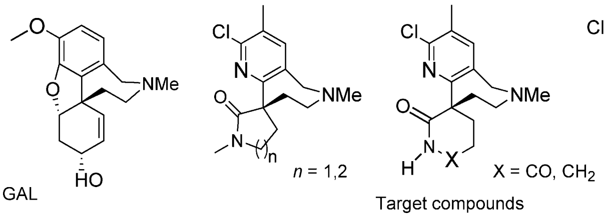
CONTENTS

Spirocyclic Pyridoazepines

S. Vanlaer, W. M. De Borggraeve, A. Voet, C. Gielens, M. De Maeyer, F. Compernolle* 2571–2581

Spirocyclic Pyridoazepine Analogues of Galanthamine: Synthesis, Modelling Studies and Evaluation as Inhibitors of Acetylcholinesterase

Keywords: Spiro compounds / Nucleophilic substitution / Heck reaction / Nitrogen heterocycles / Enzymes / Docking simulations



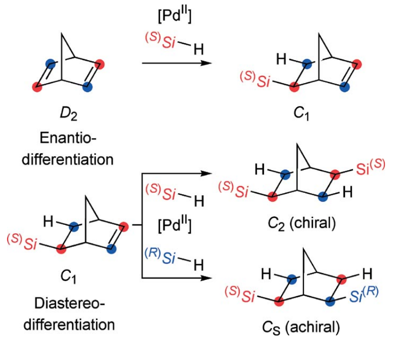
Spirocyclic pyridoazepines, designed as simplified analogues of the alkaloid galanthamine, were synthesised and evaluated as inhibitors of acetylcholinesterase. The key cyclisation step involved internal displacement of 2-chloro or 2-iodopyridine by either nucleophilic aromatic substitution or a Heck reaction. The target compounds showed significant inhibition of acetylcholinesterase.

Asymmetric Catalysis

S. Rendler, R. Fröhlich, M. Keller, M. Oestreich* 2582–2591

Enantio- and Diastereotopos Differentiation in the Palladium(II)-Catalyzed Hydrosilylation of Bicyclo[2.2.1]alkene Scaffolds with Silicon-Stereogenic Silanes

Keywords: Asymmetric catalysis / Chirality / Hydrosilylation / Silicon / Palladium



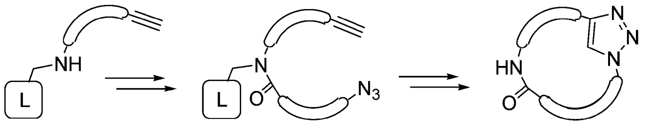
Chirality at silicon induces high site selectivity in the hydrosilylation of bicyclic alkenes. Pronounced reagent control by silicon-stereogenic silanes in the reaction of enantiopure reagents with norbornadiene exclusively furnishes C_2 isomers with preserved *excesses*, whereas racemic mixtures provide almost equal amounts of C_2 and C_s isomers.

Triazole-Containing Cyclic Peptides

J. Springer, K. R. de Cuba, S. Calvet-Vitale, J. A. J. Geenevasen, P. H. H. Hermkens, H. Hiemstra, J. H. van Maarseveen* 2592–2600

Backbone Amide Linker Strategy for the Synthesis of 1,4-Triazole-Containing Cyclic Tetra- and Pentapeptides

Keywords: BAL strategy / Cyclic peptides / Click chemistry / Triazole



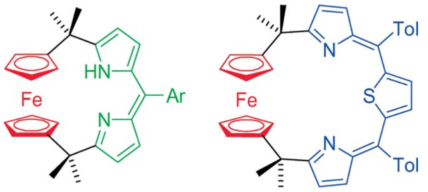
A BAL strategy has been developed for the solid-phase synthesis of triazole-containing cyclic tetra- and pentapeptides. An alkyne-substituted linker was elongated by using “Fmoc-based” solid-phase chemistry. Cyclization by the Cu^{I}-catalyzed azide-alkyne cycloaddition afforded the cyclic peptides. Analogs of *cyclo*-[Pro-Val-Pro-Tyr] and segetalin B were chosen as model compounds.

Porphyrin Analogues

M. Stępień, I. Simkowa, L. Latos-Grażyński* 2601–2611

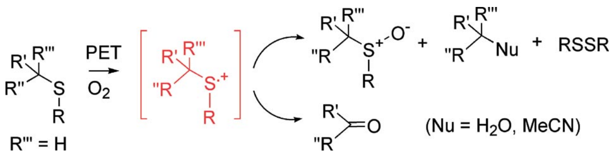
Helical Porphyrinoids: Incorporation of Ferrocene Subunits into Macrocyclic Structures

Keywords: Porphyrinoids / Metallocenes / NMR spectroscopy / Conformational analysis



Ferrocene acts as a versatile building block for the construction of porphyrinoids, providing access to macrocyclic structures of various shapes and sized. The two representative systems, shown in the figure, adopt helical conformations that undergo dynamic inversion in solution.

PET Oxidation of Sulfides



Singlet oxygen and electron transfer paths are distinguished in the photosensitized (dicyanoanthracene, triphenylpyrylium tetrafluoroborate) oxidation of alkyl and benzyl sulfides

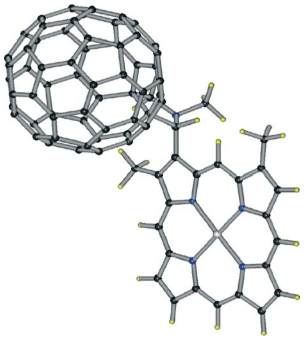
S. M. Bonesi, M. Fagnoni,
A. Albini* **2612–2620**

Photosensitized Electron Transfer Oxidation of Sulfides: A Steady-State Study

Keywords: Electron transfer / Oxidation / Photochemistry / Reaction mechanisms / Sulfides

Porphyrin–Fullerene Dyads

Porphyrin–fullerene dyads with different covalent linkages between the two subunits were synthesized and characterized for mimicking photosynthesis.

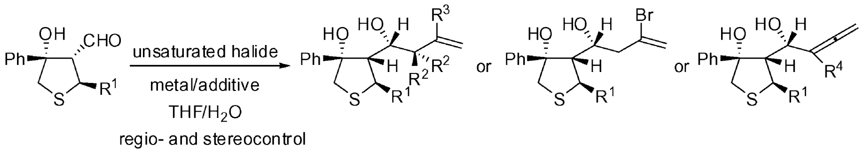


S. Leupold, T. Shokati, C. Eberle,
T. Borrmann,
F.-P. Montforts* **2621–2627**

Synthesis of Porphyrin–Fullerene Dyads and Their Spectroscopic Properties

Keywords: Porphyrinoids / Fullerenes / Dyads / Cycloaddition / Atropisomerism / Photosynthesis

Synthetic Methods



Tetrahydrothiophene-3-carbaldehydes and stabilized organic halides undergo stereocontrolled coupling under Barbier-type conditions to afford tetrahydrothiophene alcohols.

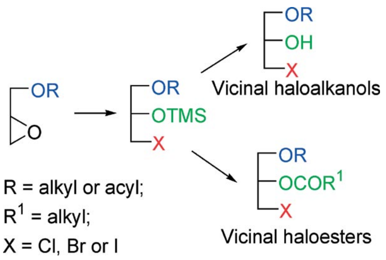
B. Alcaide,* P. Almendros,*
T. Martínez del Campo **2628–2634**

Highly Stereoselective Metal-Mediated Entry to Functionalized Tetrahydrothiophenes by Barbier-Type Carbonyl-Addition Reactions

Keywords: Nucleophilic Addition / Aldehydes / C–C coupling / Sulfur heterocycles / Synthetic methods

Vicinal Halohydrins

A novel, simple, and efficient strategy for the synthesis of C2-*O*-functionalized C3-vicinal halohydrins was developed. The protocol is based on a regioselective and stereospecific opening of the oxirane system of glycidol and involves C2-*O*-trimethylsilyl ethers as key intermediates.



S. D. Stamatov,*
J. Stawinski* **2635–2643**

Regioselective and Stereospecific Halosilylating Cleavage of the Oxirane System of Glycidol Derivatives as an Efficient Strategy to C2-*O*-Functionalized C3-Vicinal Halohydrins

Keywords: Oxygen heterocycles / Ethers / Glycidol derivatives / Carboxylic acids / Halohydrins / Alcohols

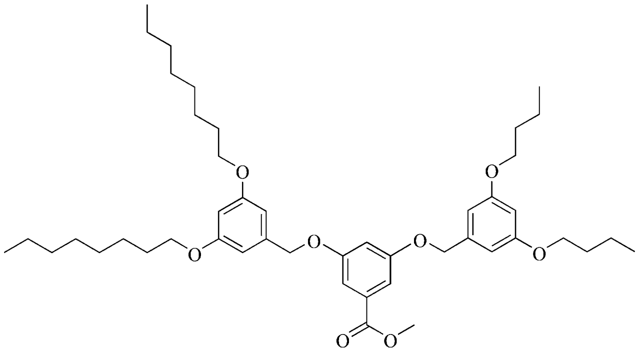
CONTENTS

Asymmetrical Fréchet Dendrons

E. C. Constable,* S. Graber,
B. A. Hermann, C. E. Housecroft,*
M. S. Malarek, L. J. Scherer 2644–2651

The Introduction of Asymmetry into Alkyl-Decorated Fréchet-Type Dendrons

Keywords: Fréchet dendrons / Alkyl tails / Dendrimers / Asymmetry



Asymmetrical Fréchet-type dendrons possessing *n*-octyl/*n*-butyl, *n*-octyl/*n*-hexyl, *n*-octyl/*n*-heptyl and *n*-octyl/*n*-dodecyl tails have been prepared by introducing 3,5-bis(octyloxyphenyl)methoxy and 3,5-bis(alkoxyphenyl)methoxy units in a stepwise manner to a central methyl 3,5-dihydroxybenzoate core.