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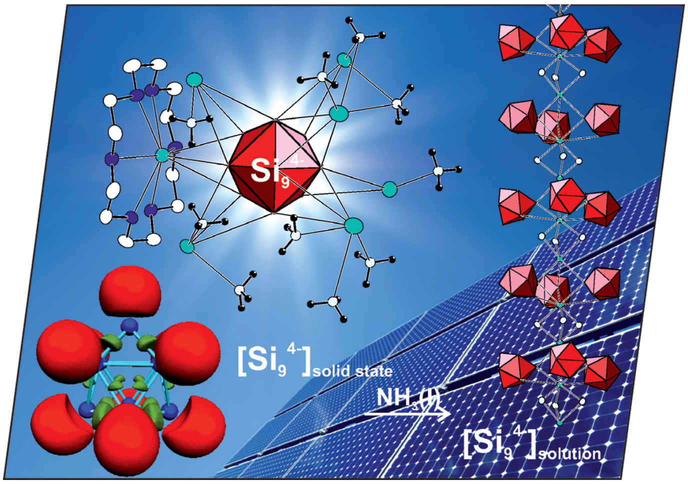
A union formed by chemical societies in Europe (ChemPubSoc Europe) has taken the significant step into the future by merging their traditional journals, to form two leading chemistry journals, the *European Journal of Inorganic Chemistry* and the *European Journal of Organic Chemistry*. Three further members of ChemPubSoc Europe (Austria, Czech Republic and Sweden) are Associates of the two journals.

COVER PICTURE

The cover picture shows significant parts of the crystal structures of Rb(18-crown-6)$Rb_3Si_9{\cdot}4NH_3$ and $Rb_4Si_9{\cdot}4.75NH_3$. On the left, the coordination sphere of the nonasilicide anion in the 18-crown-6-containing compound is shown. The second structural part shows the Rb-ammonia-nonasilicide strands found in the crystal structure of $Rb_4Si_9{\cdot}4.75NH_3$. The existence of these thermally labile ammoniates demonstrates that it is possible to extract Si_9^{4-} anions from a ternary solid-state material into a liquid ammonia solution without further oxidation. This opens the door to chemical transformations of bare electron-rich silicon clusters. The ELF picture on the left shows that no evidence for three-center, two-electron bonding can be found, although the Wade–Mingos–Williams rules obviously apply for the prediction of the molecular shape of the anions. Details are discussed in the article by N. Korber et al. on p. 4641ff.



CONTENTS

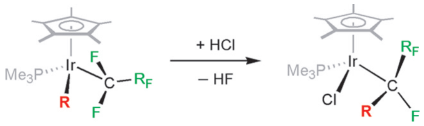
MICROREVIEW

Carbon–Fluorine Bond Activation

R. P. Hughes* **4591–4606**

Conversion of Carbon–Fluorine Bonds α to Transition Metal Centers to Carbon–Hydrogen, Carbon–Carbon, and Carbon–Heteroatom Bonds

Keywords: Fluorinated ligands / Iridium / Transition metals / Diastereoselectivity / Reaction mechanisms



The stereoselectivity of activation of the carbon–fluorine bond α to iridium by external protic acids has been studied in pseudo-tetrahedral primary fluoroalkyl complexes of iridium. Migration of internal nucleophiles leads to diastereoselective formation of new carbon–oxygen, carbon–sulfur, carbon–hydrogen, and carbon–carbon bonds.

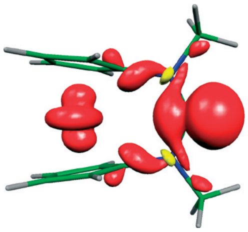
SHORT COMMUNICATION

Redox-Active Ligands

U. Siemeling,* C. Färber, M. Leibold,
C. Bruhn, P. Mücke, R. F. Winter,
B. Sarkar, M. von Hopffgarten,
G. Frenking **4607–4612**

Six-Membered N-Heterocyclic Carbenes with a 1,1′-Ferrocenediyl Backbone: Bulky Ligands with Strong Electron-Donor Capacity and Unusual Non-Innocent Character

Keywords: Carbenes / N-Heterocyclic carbenes / Radicals / Density-functional calculation / Ligand effects / Redox chemistry / Sandwich complexes



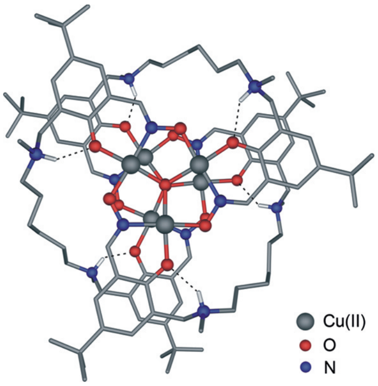
A new class of non-innocent ligands: Stable ferrocene-based NHCs are bulky ligands with very strong electron-donor capacity. Their redox activity rests not solely on the ferrocene moiety. They can be oxidised to a radical cation, the spin density of which is located at Fe and the carbene C atom and whose long-lived nature is unprecedented in NHC chemistry.

Molecular Architecture

M. Wenzel, R. S. Forgan, A. Faure,
K. Mason, P. A. Tasker, S. Piligkos,
E. K. Brechin, P. G. Plieger* **4613–4617**

A New Polynuclear Coordination Type for (Salicylaldoxime)copper(II) Complexes: Structure and Magnetic Properties of an (Oxime)Cu$_6$ Cluster

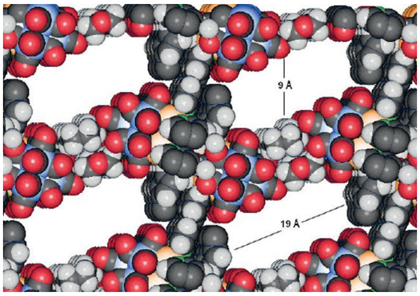
Keywords: Supramolecular chemistry / Copper / Helical structures / Magnetic properties / Salicylaldoxime



Incorporation of 3-aminomethyl groups on the salicylaldoxime framework aid Cu^{II} to form μ$_3$-oxo trinuclear complexes more commonly formed by *trivalent* first transition series metals.

1D Polymers from Clusters

1D chains of formula $[\{Ag(OC_4H_8)\{Rh_6C(CO)_{15}\}Ag(OC_4H_8)\}pyz]_\infty$ and $[bipy\{Ag_2Ru_6C(CO)_{16}\}(bipy)_2\{Ag_2Ru_6C(CO)_{16}\}\cdot 2THF]_\infty$ were obtained by condensing the carbido cluster anions $[Rh_6C(CO)_{15}]^{2-}$ and $[Ru_6C(CO)_{16}]^{2-}$ with Ag^+ ions and dinitrogen ligands. In the latter, the metal clusters are connected alternatively by one and two linkers, giving rise to large channels.



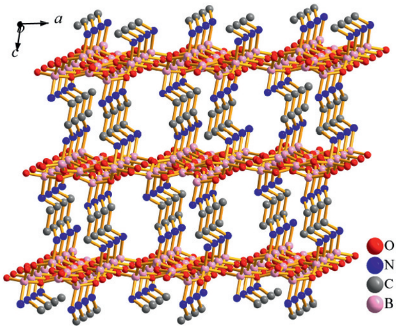
R. Della Pergola,* A. Sironi, C. Manassero, M. Manassero **4618–4621**

Chains and Nanochannels Self-Assembled from Carbido Clusters, Silver Ions and Heterocyclic Ligands – Crystal Structures of the 1D Coordination Polymers $[\{AgOC_4H_8\{Rh_6C(CO)_{15}\}AgOC_4H_8\}pyz]_\infty$ and $[bipy\{Ag_2Ru_6C(CO)_{16}\}(bipy)_2\{Ag_2Ru_6C(CO)_{16}\}\cdot 2C_4H_8O]_\infty$

Keywords: Cluster compounds / Rhodium / Ruthenium / Silver / Polymerization

Boron Oxide Open Framework

A novel open-framework compound, $B_6O_9(en)_2@(H_2en)Cl_2$, was synthesized under solvothermal conditions. The framework is built up from neutral $[B_6O_9]$ layers linked by ethylenediamine molecules through coordinative B–N bonds.



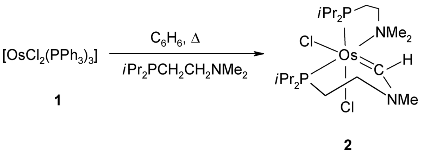
M.-C. Liu, P. Zhou, H.-G. Yao, S.-H. Ji, R.-C. Zhang, M. Ji, Y.-L. An* **4622–4624**

A Novel Boron Oxide Organic Open-Framework Compound: $B_6O_9(en)_2@(H_2en)Cl_2$

Keywords: Boron / Template synthesis / Organic–inorganic hybrid composites / Layered compounds / Structure elucidation

Carbene Osmium Complexes

The aminocarbene complex *cis,cis*-$[OsCl_2\{\kappa^2(C,P)\text{-}CHN(CH_3)CH_2CH_2P\textit{i}Pr_2\}\{\kappa^2(P,N)\text{-}\textit{i}Pr_2PCH_2CH_2NMe_2\}]$ (**2**), obtained from $[OsCl_2(PPh_3)_3]$ (**1**) and $\textit{i}Pr_2PCH_2CH_2NMe_2$ by double C–H activation of one NCH_3 group, reacts with PhC≡CH to afford a vinylidene-osmium(II) derivative. The reaction of **2** with CO and CN*t*Bu yields ionic compounds by substitution of one chloro ligand.



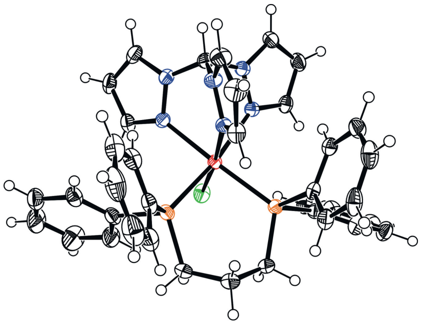
B. Richter, H. Werner* **4625–4628**

Synthesis and Reactivity of an Aminocarbene Osmium Complex Formed by Double C–H Activation of a NCH_3 Unit

Keywords: Carbene complexes / C-H activation / Osmium / Phosphaneamine / Vinylidene complex

Ruthenium Anticancer Complexes

A series of [tris(pyrazolyl)methane]ruthenium complexes supported by phosphane auxiliary ligands were found to display remarkable antiproliferative activity in vitro against the MCF-7 (breast) and HeLa (cervical) cancer cell lines. Color code: green = Cl, blue = N, orange = P, red = Ru.



J. M. Walker, A. McEwan, R. Pycko, M. L. Tassotto, C. Gottardo, J. Th'ng, R. Wang, G. J. Spivak* **4629–4633**

[Tris(pyrazolyl)methane]ruthenium Complexes Capable of Inhibiting Cancer Cell Growth

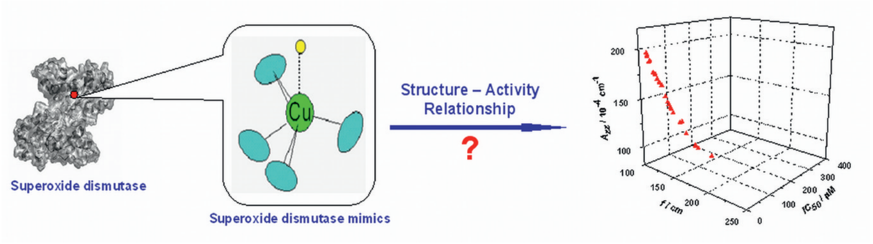
Keywords: Ruthenium / Tris(pyrazolyl)methane / Half-sandwich complexes / Antiproliferative assays / Anticancer agents

Cu/Zn Superoxide Dismutase Mimics

C. G. Palivan,* V. Balasubramanian,
B. A. Goodman 4634–4639

Global Structure–Activity Analysis in Drug Development Illustrated for Active Cu/Zn Superoxide Dismutase Mimics

Keywords: Structure–activity analysis / Enzyme mimics / Electron paramagnetic resonance / Copper complexes



The statistical analysis of most of the reported Cu/Zn superoxide dismutase mimics (SODm) indicates that their EPR parameters are directly and linearly related to their activity. Together with the appropriate redox potentials, this analysis makes it possible to distinguish the specificity of highly active Cu/Zn SODm and serves to streamline further synthetic efforts for drug development.

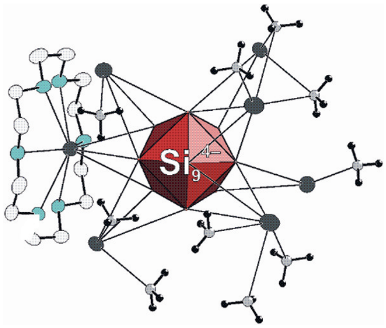
FULL PAPERS

Si_9^{4-} Anions in Solution

S. Joseph, C. Suchentrunk, F. Kraus,
N. Korber* 4641–4647

Si_9^{4-} Anions in Solution – Structures of the Solvates $Rb_4Si_9{\cdot}4.75NH_3$ and $[Rb(18\text{-}crown\text{-}6)]Rb_3Si_9{\cdot}4NH_3$, and Chemical Bonding in Si_9^{4-}

Keywords: Zintl anions / Silicon / Cluster compounds / Ab initio calculations / ELF (Electron Localisation Function)



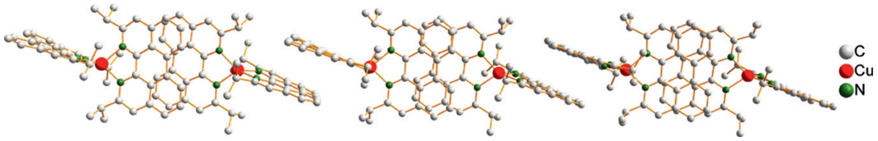
Whereas the solution chemistry of Ge_9^{4-}, Sn_9^{4-} and Pb_9^{4-} is now well established, any evidence that Si_9^{4-} might be similarly extracted from solids is still missing.

Supramolecular Chemistry

S. Kammer, A. Kelling, H. Baier,
W. Mickler, C. Dosche, K. Rurack,
A. Kapp, F. Lisdat,
H.-J. Holdt* 4648–4659

2,11-Dialkylated 1,12-Diazaperylene Copper(I) Complexes: First Supramolecular Column Assemblies by π-π Stacking between Homoleptic Tetrahedral Metal Complexes, Exhibiting Low-Energy MLCT Transitions

Keywords: Copper / N ligands / Pi interactions / Self-assembly / Immobilization

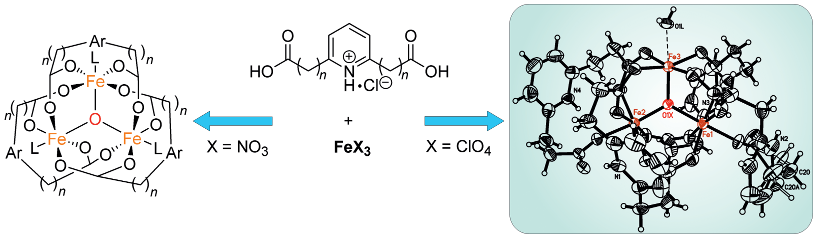


Copper(I) complexes of new “large-surface” ligands have been synthesized and characterized. In the solid state the $[Cu(dipdap)_2]BF_4$ (dipdap = 2,11-diisopropyl-1,12-diazaperylene) complex shows a columnar structure along the crystallographic c axis, held by π-π stacking interactions.

Non-Heme Iron Complexes

V. Rabe, W. Frey, A. Baro, S. Laschat,* M. Bauer, H. Bertagnolli, S. Rajagopalan, T. Asthalter, E. Roduner, H. Dilger, T. Glaser, D. Schnieders 4660–4674

Syntheses, Crystal Structures, Spectroscopic Properties, and Catalytic Aerobic Oxidations of Novel Trinuclear Non-Heme Iron Complexes



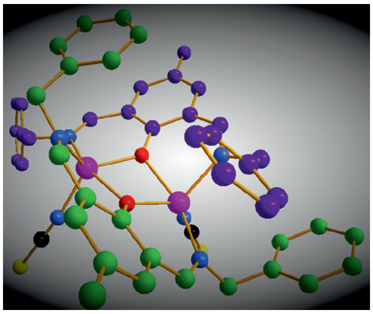
2,6-Diacylpyridine ligands with varying tether lengths between the pyridine and the carboxylate groups form Fe complexes. The trinuclear Fe$_3$(μ_3-O) core of the complexes was proved by X-ray crystal-structure analysis and was further supported by spectroscopic and magnetic studies. The Fe complexes were used in comparative Gif-type catalytic aerobic oxidations.

Keywords: Carboxylate ligands / EPR spectroscopy / EXAFS spectroscopy / Mössbauer spectroscopy / Oxidation

Dicobalt Complexes

M. Sarkar, R. Clérac, C. Mathonière, N. G. R. Hearns, V. Bertolasi, D. Ray* 4675–4685

Azido, Cyanato, and Thiocyanato Coordination Induced Distortions in Pentacoordinated [Co^{II}A(bip)]$_2$ (A = NCS$^-$, N$_3^-$, or NCO$^-$) Complexes



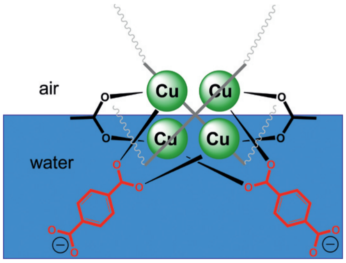
The binding of a pseudohalide to a cobalt (II) center drives the self-assembly of two dangling benzyl groups bearing binucleating ligands around the metal and yields a five-coordinate antiferromagnetically coupled [Co$_2$] complex. The ligands exhibit nonplanar binding modes that are responsible for nonregular coordination architectures often noticed in dicobalt active sites in proteins.

Keywords: N,O ligands / Bridging ligands / Cobalt / Structure elucidation / Magnetic properties

Metalloamphiphiles

S. S. Hindo, R. Shakya, R. Shanmugam, M. J. Heeg, C. N. Verani* 4686–4694

Metalloamphiphiles with [Cu$_2$] and [Cu$_4$] Headgroups: Syntheses, Structures, Langmuir Films, and Effect of Subphase Changes



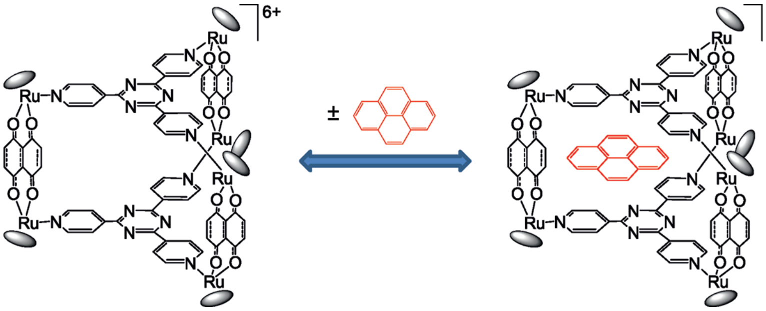
Metalloamphiphiles capable of accommodating bimetallic and tetrametallic copper-containing headgroups were synthesized and characterized. These amphiphiles are based on pseudomacrocyclic and open-frame ligands and allow for the study of film formation at the air/water interface as a function of core sizes, structural architectures, and subphase changes.

Keywords: Amphiphiles / Copper / Terephthalate / Pseudomacrocyclic / Langmuir films / Brewster angle microscopy / N,O ligands / Interfaces

Host–Guest Chemistry

N. P. E. Barry, B. Therrien* 4695–4700

Host–Guest Chemistry in the Hexanuclear (Arene)ruthenium Metalla-Prismatic Cage [Ru$_6$(*p*-cymene)$_6$(tpt)$_2$(dhnq)$_3$]$^{6+}$



A large cationic triangular metalla-prism, [Ru$_6$(*p*-cymene)$_6$(tpt)$_2$(dhnq)$_3$]$^{6+}$, possessing a portal size smaller than its cavity, has allowed both, permanent and temporary encapsulation of molecules. The host–guest properties have been studied in solution in the presence of various planar molecules and showed a stability constant of association larger than $4.0 \times 10^4\ \mathrm{M}^{-1}$ for pyrene.

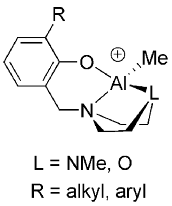
Keywords: Arenes / Host–guest systems / Carceplex / Ruthenium / Supramolecular chemistry

Aluminium Chemistry

J.-T. Issenhuth, J. Pluvinage, R. Welter, S. Bellemin-Laponnaz, S. Dagorne* **4701–4709**

Novel Neutral and Cationic Aluminium Alkyl Complexes Supported by Potentially Tridentate O,N,L-Type Aminophenolate Ligands and Their Use in Propylene Oxide Polymerization

Keywords: Lewis acids / Aluminum / Cations / Polymerization / N,O ligands



L = NMe, O
R = alkyl, aryl

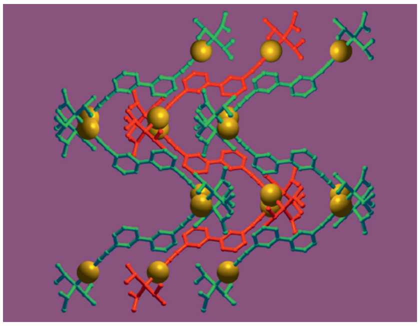
Potentially tridentate O,N,L-type aminophenolate chelating ligands were found to be suitable for coordination to aluminium, allowing access to stable neutral and cationic Al alkyl species. Some of these cations were found to be highly active in propylene oxide polymerization under mild conditions to yield atactic poly(propylene oxide) with a moderate polydispersity.

Emissive 2,2′-Bipyridines

E. C. Constable,* C. E. Housecroft,* M. K. Kocik, M. Neuburger, S. Schaffner, J. A. Zampese **4710–4717**

Structural and Photophysical Properties of (Phosphane)gold(I)-Decorated 4,4′-Diethynyl-2,2′-bipyridine Ligands

Keywords: Gold / Heterocycles / Alkynes / 2,2′-Bipyridine / Phosphane ligands / Photophysics



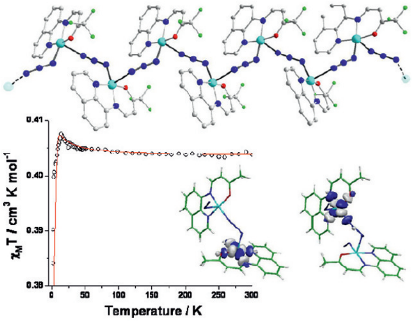
Bis[(phosphane)gold(I)]-decorated 4,4′-diethynyl-2,2′-bipyridine ligands can be prepared from 4,4′-diethynyl-2,2′-bipyridine and R_3PAuCl (R = Ph, 4-Tol, Et, *i*Pr). The solid-state structures of these derivatives show a dependence upon the presence of aryl- or alkyl-substituted phosphane; the change from ethyl to isopropyl substituents leads to packing differences that result in the propagation of two different polymeric chain motifs, both supported by close Au···Au contacts. In CH_2Cl_2 solution at room temperature, each compound is a dual emitter.

1D Chain Polymers

G. Pilet,* M. Médebielle, J.-B. Tommasino, G. Chastanet,* B. Le Guennic, C. Train **4718–4726**

Single End-to-End Azidocopper(II) Chain Based on an Electroactive Ligand: A Structural, Electrochemical, Magnetic and Ab Initio Study

Keywords: Magnetic properties / Chain structures / Azides / Copper



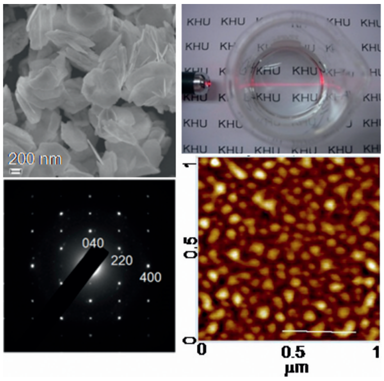
Single end-to-end azide bridges between enaminone-chelated copper(II) ions build one dimensional compounds. In this configuration, the azido bridge mediates a weak ferromagnetic interaction, which is justified by ab initio calculations.

Layered Hydroxy Nitrates

K.-H. Lee, S.-H. Byeon* **4727–4732**

Synthesis and Aqueous Colloidal Solutions of $RE_2(OH)_5NO_3{\cdot}nH_2O$ (RE = Nd and La)

Keywords: Layered compounds / Rare earths / Colloids / Inclusion compounds



A new, simple route was developed to synthesize the complete rare-earth series of the $RE_2(OH)_5NO_3{\cdot}nH_2O$ family. The hydration of $La_2(OH)_5NO_3{\cdot}nH_2O$ and $Nd_2(OH)_5NO_3{\cdot}nH_2O$ synthesized by this nonaqueous solvothermal method yielded transparent aqueous colloidal solutions.

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* Author to whom correspondence should be addressed.

Supporting information on the WWW (see article for access details).