

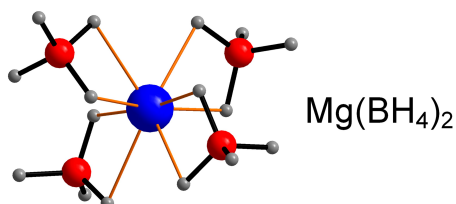
Science Concentrates

Magnesium Borohydride: Synthesis and Crystal Structure

R. Černý*, Y. Filinchuk*, H. Hagemann, and K. Yvon, *Angew. Chem., Int. Ed.* **2007**, *46*, 5765

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In this article the authors present the synthesis, the structure determined from synchrotron X-ray and neutron diffraction data, and the Raman spectrum of solvent-free $\text{Mg}(\text{BH}_4)_2$. The compound was obtained by a hitherto unexplored method that avoids the use of diborane, and involving the metathesis of LiBH_4 and MgCl_2 in Et_2O . This structure is a remarkably complex three-dimensional framework that differs from the structures of its alkaline analogues or those predicted by theory. It represents one of the most complex atom arrangements ever solved from powder diffraction data.

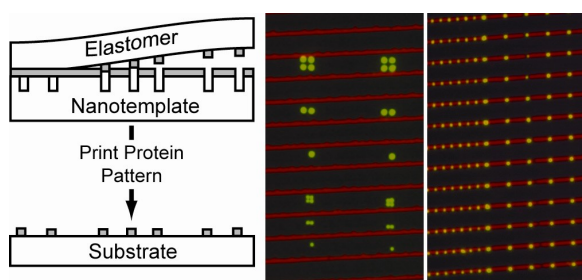


Facile Preparation of Complex Architectures with Sub-100-nm Resolution on Surfaces

S. R. Coyer, A. J. García, and E. Delamarche*, *Angew. Chem., Int. Ed.* **2007**, *46*, 6837

IBM Research GmbH; Georgia Institute of Technology

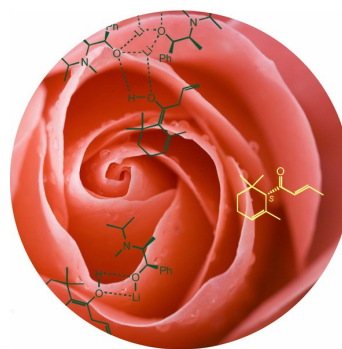
Proteins on surfaces play a ubiquitous and central role in host responses to implanted biomedical devices and in biotechnological applications. Although many approaches have been pursued for patterning proteins on surfaces with high resolution, no single method is generally applied due to limitations that include extended time requirements and technically challenging processes. In this article, authors present a novel method to pattern multiple proteins simultaneously into complex architectures. A planar elastomer is inked with a monolayer of protein, which is then patterned by subtracting proteins from it using a nanotemplate. Transferring the remaining proteins from the elastomer to a final substrate by printing allows the patterning of proteins on surfaces with arbitrary geometries and a resolution better than 100 nm over large pattern areas (mm^2).



Catalytic Enantioselective Tautomerization of Isolated Enols

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Firmenich SA

The catalytic enantioselective ketonization of enols, using substoichiometric amounts of the lithium salt of (-)-N-isopropylephedrine as reagent, allows the preparation of ketones bearing α -stereogenic centers with high enantioselectivity. In particular, the rose-scented (S)- α -damascone is accessed from the corresponding enol. Enol and enolate protonations are closely related: In both cases a half deprotonated (or half protonated) complex is formed which is certainly further aggregated, as evidenced by the distinct non-linear effects observed when using a chiral reagent of 50% ee.



Palladium-Catalyzed Allylic Substitution: Reversible Formation of Allyl-Bridged Dinuclear Palladium (I) Complexes

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ESI-MS monitoring of a palladium-catalyzed allylic substitution reaction has provided evidence for the formation in substantial amounts of dinuclear allyl-bridged Pd(I) species which can reversibly form more reactive and electrophilic monomeric Pd(II) complexes. Throughout the reaction, the change of color shows the transformation of the different entities in solution. Upon consumption of the starting materials, a new dinuclear complex resulting from the reductive C–Cl bond cleavage of the solvent CH_2Cl_2 was observed.

