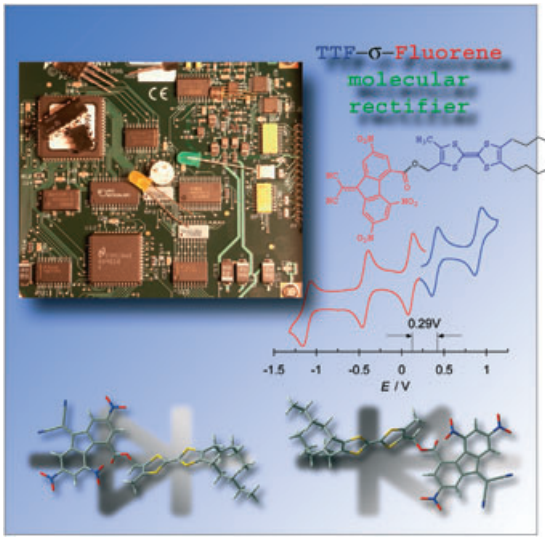
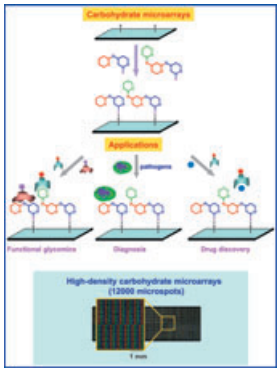
CHEMISTRY
A EUROPEAN JOURNAL

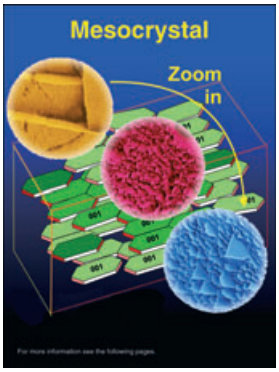
… in molecular electronics has been investigated with the recently synthesized tetrathiafulvalene-σ-trinitrofluorene diad (depicted on the cover). As determined by cyclic voltammetry, the HOMO–LUMO gap of this diad is as low as ~0.3 eV, close to that of the theoretical Aviram–Ratner TTF-σ-TCNQ molecular rectifier. The rectification behavior of this molecule was tested as a function of electrode material (Si/Ti and Au/Hg), alignment, and orientation of the molecules in the junction. For more information, see the paper by J. R. Heath, D. F. Perepichka et al. on page 2914 ff.

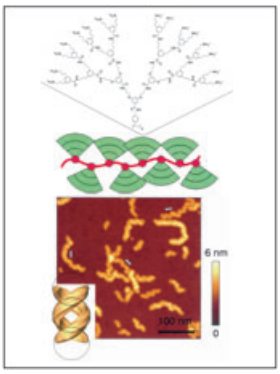




High-Throughput Chemistry
The biological significance of glycans in the post-genomic era requires the development of new technologies to enable functional studies of carbohydrates in a high-throughput manner. I. Shin et al. discuss the use of carbohydrate microarrays as an advanced technology for this purpose in the Concept article on page 2894 ff.

Mesocrystal Superstructures
In their paper on page 2903 ff, H. Cölfen et al. describe the crystallization of a supersaturated solution of D,L-alanine in the presence of a chiral double-hydrophilic block copolymer. This polymer-mediated structuration yields superstructures of three-dimensionally, well-aligned nanocrystals that are scaffolded to a so-called mesocrystal, and suggests an important role for mesoscopic events in a typical crystallization process.





Dendronized polymers
Simple charging of dendronized polymers in buffered solution of polymer strands in water is enough to force two polymer strands into dimeric aggregates. Some of the ultrastructures, which were determined by image analysis and three-dimensional reconstruction of cryo-transmission electron microscopy, revealed double-helical structures reminiscent of the braiding seen with dsDNA. The research described by C. Böttcher, J. P. Rabe et al. on page 2923 ff provide opportunities for the investigations of nanoconstructions.

