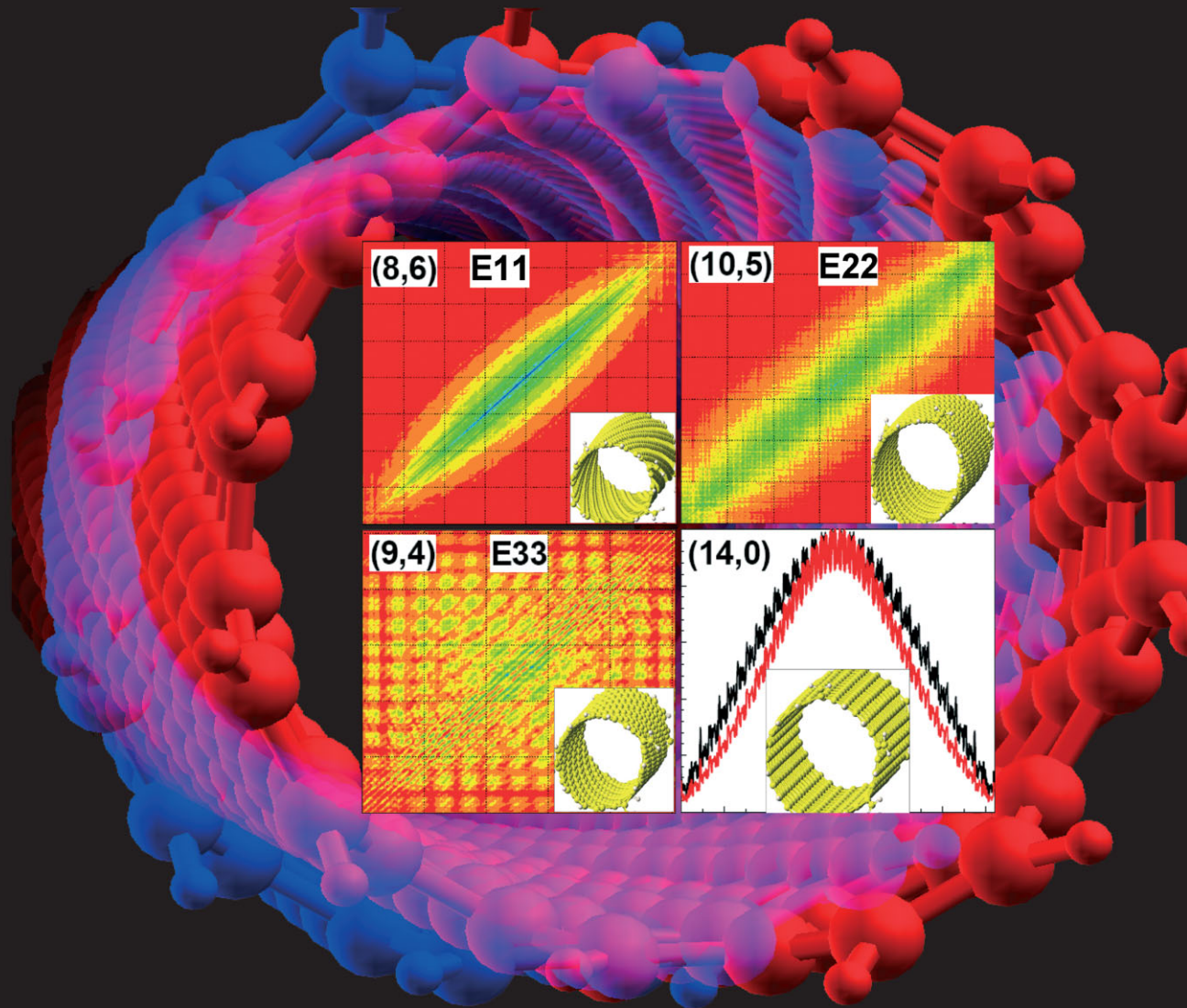




ADVANCED FUNCTIONAL MATERIALS



Excitonic and Vibrational Properties of Carbon Nanotubes

Layered AgBr-Based Inorganic/Organic Nanosheets

Organic Light Emitting Field Effect Transistors

Nanocrystal Patterns in Polymer Films

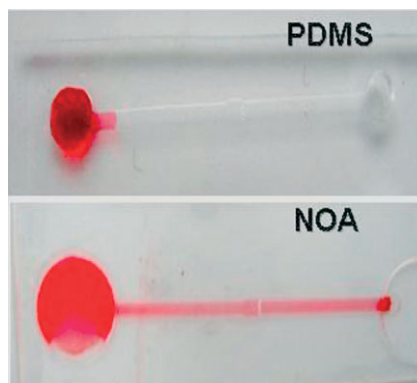
Thermoresponsive Microgels

FULL PAPERS

Microfluidics

S. H. Kim, Y. Yang, M. Kim,
S.-W. Nam, K.-M. Lee, N. Y. Lee,
Y. S. Kim,* S. Park* 3493 – 3498

Simple Route to Hydrophilic Microfluidic Chip Fabrication Using an Ultraviolet (UV)-Cured Polymer

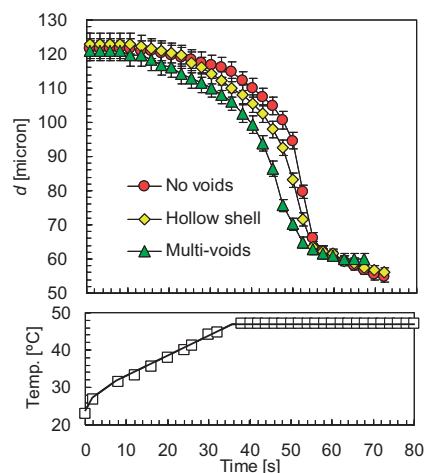


Capillary forces can be used to fill this commercially available UV-cured photopolymer with aqueous solutions (see figure) as opposed to the more commonly used polydimethylsiloxane. The beauty of this is that microfluidic chips created from this material can easily be produced by a simple oxygen-plasma treatment. The chips in their turn can then be used for assays and other optical detection systems.

Porous Materials

L.-Y. Chu,* J.-W. Kim, R. K. Shah,
D. A. Weitz* 3499 – 3504

Monodisperse Thermoresponsive Microgels with Tunable Volume-Phase Transition Kinetics

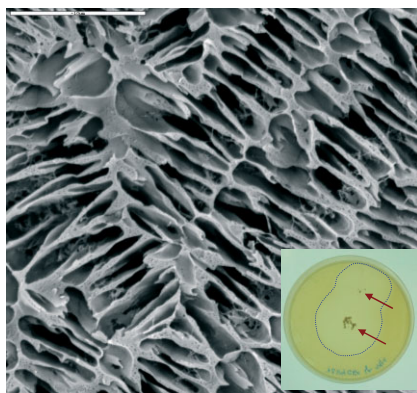


A facile method to control the volume-phase transition kinetics of thermo-sensitive microgels is presented. The flexibility and control over the response kinetics offered by this method should make these microgels more useful for a wide range of applications.

Drug Delivery

M. C. Gutiérrez, Z. Y. García-Carvajal,
M. Jobbágy, F. Rubio, L. Yuste,
F. Rojo, M. L. Ferrer,
F. del Monte* 3505 – 3513

Poly(vinyl alcohol) Scaffolds with Tailored Morphologies for Drug Delivery and Controlled Release

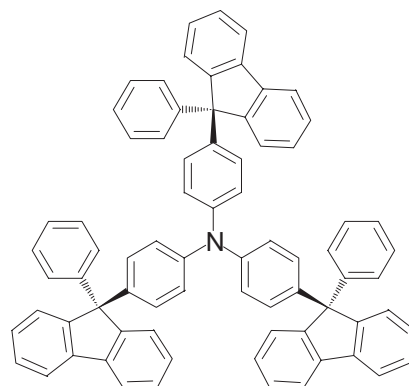


A unidirectional freezing process, named ISISA (ice segregation induced self-assembly), is applied for the preparation of monolithic poly(vinyl alcohol) scaffolds with a well-defined microchanneled structure (see figure; scale bar: 10 μm). The scaffolds can be used for drug delivery purposes: the drug kinetic release being controlled by its structural morphology.

Light-Emitting Diodes

P.-I. Shih, C.-H. Chien, F.-I. Wu,
C.-F. Shu* 3514 – 3520

A Novel Fluorene-Triphenylamine Hybrid That is a Highly Efficient Host Material for Blue-, Green-, and Red-Light-Emitting Electrophosphorescent Devices



Electrophosphorescent devices based on the readily synthesized, morphologically and electrochemically stable host material **TFTPA**, which contains a triphenylamine core and three 9-phenyl-9-fluorenyl peripheries, exhibit superior performance relative to devices based on conventional carbazole derivatives.