possible (for a given tube length) through rational interface design for optimized heat dissipation and phonon relaxation." The discovery, they said, "may have general implications for high-current applications of quasi-1D materials." The researchers also said that their discovery may lead to new device applications consisting of suspended SWNTs.

STEVEN TROHALAKI

Reversible Guest Exchange Demonstrates Robustness of Zinc-Porphyrin–Based 3D Coordination Networks

Porous crystalline solids with a controlled pore size are attractive candidates for use in gas storage and separation, specific sorption, ion exchange, and catalysis. Three-dimensional porous crystalline materials are often assembled from precursors known as tectons—molecules whose interactions are predominantly dominated by forces that induce their self-assembly into organized architectures. In the August 8 issue of *Chemical Communications* (p. 3906; DOI 10.1039/b508135c), E. Deiters, V. Bulach, and M.W. Hosseini from Louis Pasteur University in Strasbourg have reported the synthesis of a novel zinc porphyrin tecton, which assembles into a robust crystalline network.

The tecton consists of a metalloporphyrin core with two meso positions of the porphyrin core functionalized with pyridine groups. The zinc core and the two oppositely oriented pyridines are available for further coordination; thus, this self-complementary molecule can assemble into an infinite three-dimensional coordination network. The coordination geometry around the Zn center leads to the formation of hexagonal channels in the network.

The researchers found that the voids in the hexagonal networks were filled with solvent molecules. These solvent molecules could be easily removed from the channels under a vacuum. Furthermore, the solvent molecules (methanol or ethanol) were reintroduced into the channels upon exposure to solvent vapor, or could even be replaced by other molecules such as cyclohexane, while still preserving the hexagonal channel structure. Thus, guest exchange between different solvents in the channels of the network occurs by a single-crystal-to-single-crystal transformation, retaining the structural integrity of the framework at all times. The researchers said that many crystalline porous solids collapse upon removal of included guests; thus they found remarkable the robustness of the three-dimensional framework achieved with this tecton.

SARBAJIT BANERJEE

Rare "Triple Coincidence" of Optical Nonlinearities for Use in Quantum Encryption and Teleportation Engineered in Periodically Poled KTP

One of the strangest aspects of quantum mechanics is the phenomenon of entanglement. Entangled particles share identical or complementary properties, such as energy, spin, or momentum, even when the values of those properties are undefined for the individual particles. Entanglement can also exist between different electromagnetic-field modes of bright (many-photon) laser beams. This area, known as continuous variable (CV) entanglement, has become a major focus of interest for quantum encryption and

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