

## **289v Magnetospirillum Magnetotacticum as Active Catalysts for the Growth of Carbon Nanotubes**

*Nitin Kumar, Wayne Curtis, and Jong-in Hahn*

We present a straightforward method to produce multiwalled carbon nanotubes using magnetic nanoparticles of *Magnetospirillum magnetotacticum* as catalysts. Carbon nanotube growth on these nanoparticles resulted in multiwalled carbon nanotubes of an average diameter of 13 nm showing a narrow distribution in diameter. The magnetic character of the iron-containing catalysts was exploited to generate biased growth orientations of the multiwalled carbon nanotubes during their synthesis. This magnetic bacteria-based synthetic approach represents a step forward towards synthesis-directed assembly of carbon nanotubes which is needed for easy integration of these materials into nanoelectronic devices.