Concurrent Technologies Corporation

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Concurrent Technologies Corporation Researcher Edits Yale Journal Issue on Nanotechnology and Sustainability

Johnstown, PA, February 2, 2009 – Over the past year, Shannon Lloyd, Principal Technical Advisor at Concurrent Technologies Corporation (*CTC)*, and Roland Clift, Professor at the University of Surrey, served as guest editors of the *Journal of Industrial Ecology*'s special issue on nanotechnology. A column written by Drs. Lloyd and Clift entitled "Nanotechnology: A New Organism in the Industrial Ecosystem?" was one of the Journal's top five accessed articles in 2008.

Industrial ecology is an approach for investigators and policy makers that takes a systems view to analyze the interactions between industrial and natural systems and identifies opportunities for sustainable production and consumption. The goal is to form an integrated industrial ecosystem that meets human needs while also preserving ecological integrity.

At *CTC*, Dr. Lloyd employs industrial ecology methods to evaluate the life cycle risks and benefits of technology alternatives. She conducted leading life cycle assessment work focused on nanotechnology-based products, which supported her selection as a guest editor. As guest editors, Drs. Lloyd and Clift issued a call for papers, coordinated the peer-review process, conducted editorial review of all accepted papers, and submitted a guest editorial. When asked about the experience, Dr. Lloyd replied; "It was a challenging, but rewarding experience. I learned a lot about the peer-review process from the editor's perspective and effectively communicating scientific findings. The papers in this issue clearly reveal that nanotechnology offers both potential benefits and potential harm. It is important to consider the full life cycle of this emerging technology."

Articles in the special issue present important findings and insights. Hatice Şengül and colleagues at the University of Illinois at Chicago found that strict material purity requirements, low yields, toxic chemical use, and high energy requirements of nanomanufacturing may have a significant environmental impact. Vikas Khanna and colleagues at The Ohio State University found that the life-cycle environmental impacts of carbon nanofiber production may be as much as 100 times greater per unit of weight than those of traditional materials. Matthew Eckelman and colleagues at Yale University explored how green chemistry can be employed to design out some of the negative impacts and risks. Satish Joshi at Michigan State University explored the sustainability of incorporating nanoclay into biopolymers.

The articles in this issue, including the column by Drs. Lloyd and Clift, are available online for free download at www.interscience.wiley.com/journal/jie-nano. The *Journal of Industrial Ecology* is owned by Yale University and published by Wiley-Blackwell. It is the official journal of the International Society for Industrial Ecology. Support for this special issue was provided by the Educational Foundation of America in Westport, Conn., and the Project on Emerging Nanotechnologies of the Woodrow Wilson International Center for Scholars in Washington, D.C.

Concurrent Technologies Corporation (*CTC*) is an independent, nonprofit, applied scientific research and development professional services organization providing innovative management and technology-based solutions to government and industry. As a nonprofit 501(c)(3) organization, *CTC*'s primary purpose and programs are to undertake applied scientific research and development activities that serve the public interest. For more information, visit www.ctc.com.

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