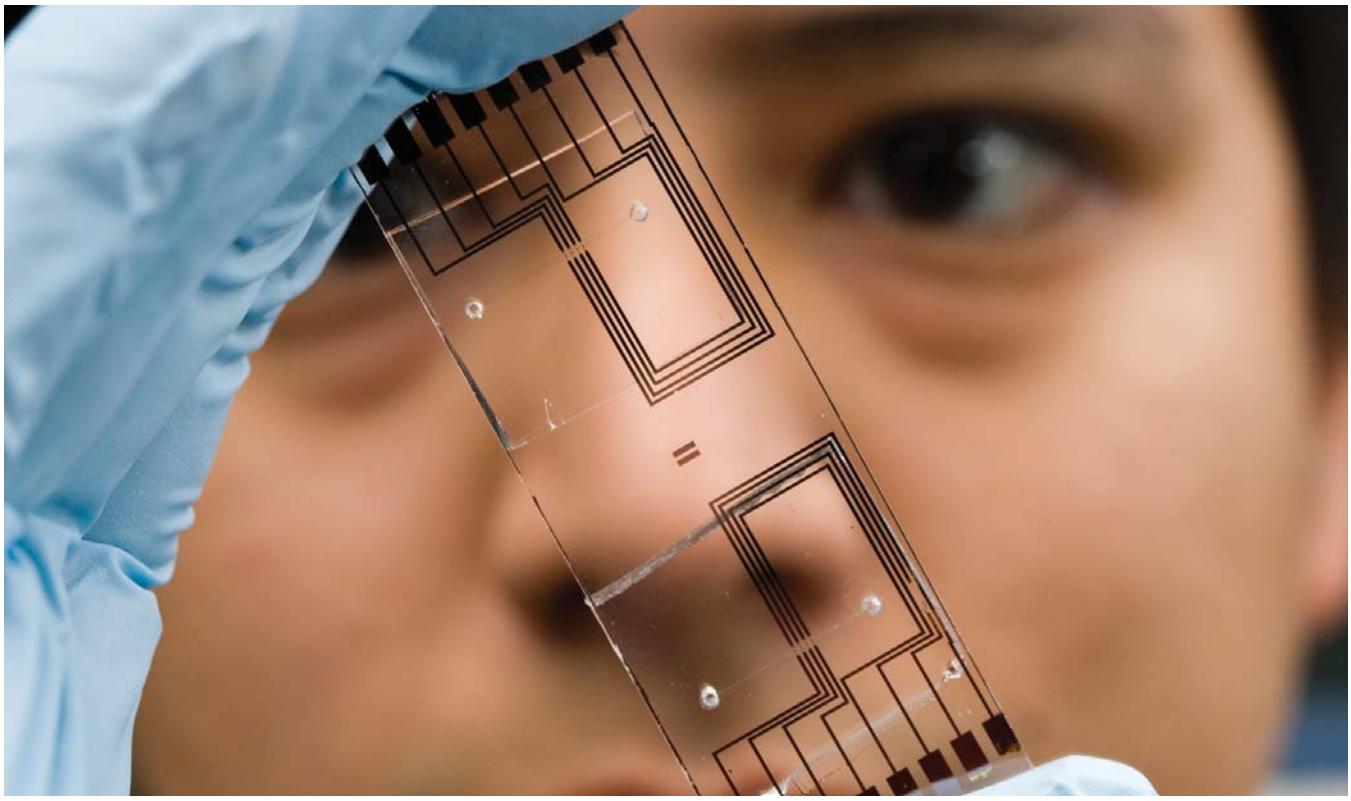
UC Irvine Establishes Center to Study Small-Scale Fluidic Behavior

Micro/Nano Fluidics Fundamentals Focus Center receives $7.2 million over three years to advance science believed key to unlocking vast array of new technologies

BY ENGINEERING AND UNIVERSITY COMMUNICATIONS



With the support of $7.2 million over three years, UC Irvine has created a center for the study of micro- and nano-fluidics – the science and technology of preparing and handling small amounts of fluids on microchips.

The Micro/Nano Fluidics Fundamentals Focus Center (MF3) brings together 17 leading micro- and nano-fluidics professors from 10 universities nationwide to advance the basic science and applications of a field seen as key to creating a vast array of new technologies. With scientists representing the disciplines of biomedical, mechanical and electrical engineering, as well as chemistry, research is expected to apply to areas such as health care, electronics, and environmental and food monitoring.

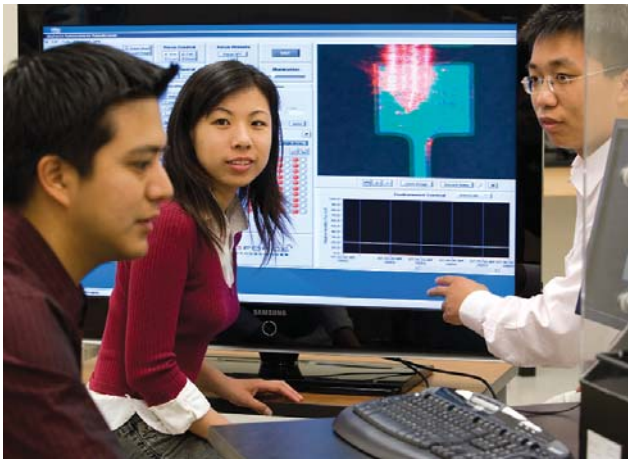
In health care, MF3 may be critical to creating new instruments that directly interact with the human body in ways not currently possible, leading to future consumer products such as point-of-care diagnostic machines for detecting disease. The Center also will work to create advanced health monitoring devices that provide patients continuous and proactive assistance in managing their health.

“The promise of fluidics technology is broad and exciting,” said Abraham Lee, Ph.D., principal investigator of MF3 and professor of biomedical engineering and mechanical and aerospace engineering at UC Irvine. “In the health sciences, it can allow for the automated collection of fluid samples, such as water or blood; or the separation and detection of biological components such as cells, proteins or DNA; and chemicals such as toxins or pollutants. In a field like heat management, fluidics can facilitate the more efficient transport of fluids.”

Additionally, MF3 will provide graduate students the opportunity to interact with researchers and professors from multiple fields. These students will learn the skills necessary to design modular micro- and nano-fluidic components and handheld, portable devices, as well as build the technology cost-effectively. Students also will collaborate with industry partners, and develop ways to easily manufacture the products and test new technology, ensuring the highest quality and reliability possible before it becomes available to consumers.

"Our goal is to provide an interdisciplinary center that propels the science of microfluidic chip technology, while encouraging industry participation and exploring how to commercialize the technology developed at MF3," Lee said.

The center is a spin-off of activities completed at the Integrated Nanosystems Research Facility, an interdisciplinary research laboratory in The Henry Samueli School of Engineering that focuses on work with a broad range of nanoscale systems.



MF3 is being funded by the Defense Advanced Research Projects Agency in the amount of $4.3 million, and more than a dozen company sponsors will contribute nearly $2.9 million to the center over three years. For more information, visit the MF3 center Web site at www.inrf.uci.edu/mf3/.

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