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ASU's Flexible Display Center and UT Dallas Develop Flexible CMOS Circuits

TEMPE, Ariz. - May 13, 2009 - Arizona State University's Flexible Display Center (FDC) and the University of Texas at Dallas (UT Dallas) today announced that they have successfully produced CMOS circuitry on a flexible plastic substrate. Primarily designed to advance flexible electronics, the new plastic CMOS circuits have demonstrated exceptional power efficiency, one-third the power consumption of traditional thin film transistor circuitry, making flexible CMOS ideal for potential applications such as smart medical bandages or triage patches.

"The development of flexible CMOS transistors is a significant advance over existing circuits based on amorphous silicon," said Bruce Gnade, vice president for research at UT Dallas. "This represents the first step towards creating higher-level flexible electronics circuitry, such as logic and memory."

The research and development project has focused on integrating two types of thin film transistors (TFTs), N-type amorphous silicon and P-type organic silicon, to fabricate CMOS logic gates on flexible polyethylene naphthalate (PEN), a high-temperature polyester film. The electrical duality between the NMOS and PMOS transistors achieves dramatically reduced power consumption for flexible circuits.

"Our research and development work with UT Dallas is designed to accelerate the development of flexible electronics. Today's announcement is the platform for achieving that goal," stated David Allee, Director of R&D for Backplane Electronics at the FDC. "Offering product flexibility has inherent benefits from a design perspective. It also offers the advantage of being extremely power efficient, especially when compared to rigid devices.

Going forward, the capability we have demonstrated with UT Dallas will open up a world of possibilities in terms of applications.”

About the Flexible Display Center

The FDC is a government - industry - academia partnership that’s advancing full-color flexible display technology and fostering development of a manufacturing ecosystem to support the rapidly growing market for flexible electronic displays. FDC partners include many of the world’s leading providers of advanced display technology, materials and process equipment. The FDC is unique among the U.S. Army’s University centers, having been formed through a 10-year cooperative agreement with Arizona State University in 2004. This adaptable agreement has enabled the FDC to create and implement a collaborative partnership model now proven with over 20 engaged industry members, and to successfully deploy world class wafer-scale R&D and GEN-II display-scale pilot production lines for rapid flexible display technology development and manufacturing supply chain commercialization. More information on the Flexible Display Center can be found at www.flexdisplay.asu.edu.

About UT Dallas

UT Dallas comprises seven schools, offers an array of interdisciplinary degree programs, and features a student population as diverse as its areas of study. With a current enrollment of more than 14,500 students and a world-class faculty that includes one Nobel laureate, members of the National Academies of Science and Engineering and active, news making researchers, UT Dallas aims to provide Texas and the nation with the benefits of education and research programs of the highest quality. By merging theory with practice in the classrooms and at the University’s 36 research centers, we challenge students to investigate their own questions and create the future they envision for themselves. *US News and World Report* has ranked UT Dallas among the top three public universities in Texas. Both *Kiplinger’s Personal Finance Magazine* and *Consumer’s Digest* have ranked UT Dallas among the best values for public colleges nationally. Find out more at www.utdallas.edu.