

Previews & Postscripts

Smart Eyeglasses

Optical scientists have developed eye-glass lenses that switch focus in a blink of an eye. The scientists at the UA have developed new switchable, flat, liquid crystal diffractive lenses that can adaptively change their focusing power. That's great news for those old enough to wear bifocals. And it's great news for anyone with imperfect vision, for it



LORI STILES

opens the way for next-generation "smart" eyeglasses – glasses with built-in automatic focus. In the foreseeable future, for example, you won't change prescription eyeglasses – your doctor will just tweak a new prescription into the specs you already own.

"Ultimately this will act just like your automatic camera: Eyeglass lenses will know where to focus just like your auto-focusing camera does," said Nasser Peyghambarian, chair of photonics and lasers in the UA's College of Optical Sciences and professor of optical sciences.

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Mission to Mars

Space scientists and engineers are readying the Phoenix Mission lander for its launch to Mars in August 2007.

The Phoenix Mission will be run from The University of Arizona, with Peter Smith as the principal investigator, after a May 2008 landing.

The Phoenix Scout Mission to Mars aims to uncover clues about the history of water and potential for habitat to support life. It will feature a robotic arm for digging into the Martian soil, a robotic arm camera, a surface stereo camera, a descent camera, a high-temperature furnace and mass spectrometer called TEGA, a miniature wet chemistry laboratory and a meteorological station – all working from a lander platform the size of a breakfast table.

The flight computer, power systems and science instruments will be fully assembled this fall. The Phoenix Mission Science Operations Center will hold an open house in October.

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Unraveling the Maize Genome

UA/BIO5 researchers and their partners are unlocking the genetic code of the corn plant. The knowledge gained from the Maize Genome Sequencing Project will enable plant scientists and breeders to improve agronomically important traits in cereal crops more rapidly.

"The genome sequence will tell us which genes we need to focus on to develop corn varieties that produce higher yield and better quality with less water on less land," said Rod Wing, who is a professor in the department of plant sciences at the UA College of Agriculture and Life Sciences and a member of BIO5. Other improvements aim at increasing yield and nutritional value and optimizing the properties crucial for grain products such as flour, noodles and pasta.

Unraveling the corn genome will be a breakthrough with enormous implications for other cereal crops besides corn, including varieties important for Arizona, Wing said.

The National Science Foundation awarded the consortium of four research institutions a \$29 million federal grant to unlock the genetic code.

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New CPR a Life Saver

Survival rates following the most common form of cardiac arrest increased three-fold when emergency medical personnel used a new form of CPR developed at The University of Arizona Sarver Heart Center. The new approach, called Cardiocerebral Resuscitation, is dramatically different from guideline-directed CPR procedures.

"Cardiocerebral Resuscitation eliminates certain previously recommended procedures and reprioritizes the order of actions the emergency medical services deliver," said Dr. Michael J. Kellum, lead author of the study report.

Under the new approach, first responders skipped the first steps of the standard protocol: intubating the patient for ventilation and delivering a shock using a defibrillator. While still attaching the victim to a defibrillator, they

did not wait for the device to analyze the patient's heart rhythm, but started fast,

forceful chest compressions.

"In laboratory experiments, we

found that the most important fac-

tor of survival is to keep the blood moving through the body by continuous chest compressions,"

said Dr. Gordon A. Ewy, director of the Sarver Heart Center and co-author of the study, who pioneered the CPR Research Group. "I am convinced that Cardiocerebral Resuscitation will have a worldwide impact."

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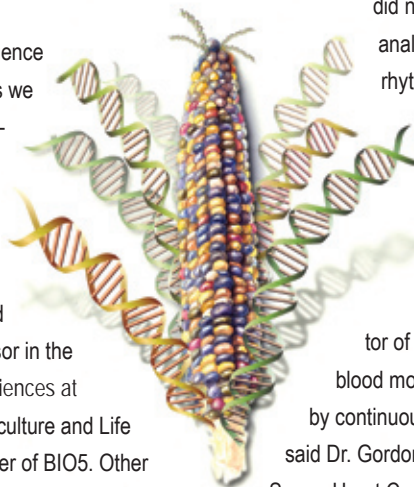


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