

inners since 1989

Committee awards Nobel Prizes for fields of chemistry, physics

were awarded Nobel Prizes yesterday for their efforts to corral some of the fastest, smallest phenomena in the universe and peer into their very cores.

None of the winners of the physics and chemistry prizes this year are household names. But the face of the chemistry winner, Ahmed Zewail of the California Institute of Technology, is familiar in his native Egypt, where he appears on two postage stamps.

Zewail, 53, was honored for pioneering a revolution in chemistry by using rapid-fire laser flashes that illuminate the motion of atoms in a molecule.

The Royal Swedish Academy of Sciences said Zewail's work in the 1980s led to the birth of femtochemistry, the use of high-speed cameras to monitor chemical reactions at a scale of femtoseconds, 0.000000000000001 seconds (one-quadrillionth of a second).

"We have reached the end of the road; no chemical reactions take place faster than this," the academy said. 'We can now see the movements of individual atoms as we imagine them. They are no longer invisible.'

Other scientists described Zewail's studies of how chemical bonds break and new molecules form as 'the ultimate level of observation." They said because his work helps researchers manipulate chemical reactions on a fundamental level, it might lead to faster computer chips and ultra-precise machinery.

"Everything in life is getting faster and faster," Henry Kaptyen, a laser expert at the University of Colorado in Boulder, said. "This lays the groundwork for technology that will develop over the next 20 to 50 years."

"The main thing you have to do to get the Nobel Prize is not die."

> - Martinus J.G. Veltman Co-winner of 1999 Nobel Prize in physics

The Nobel committee surprised a sleeping Zewail with a pre-dawn telephone call to his home in San Marino, Calif., where he was recuperating from a cold.

Gerardus 't Hooft and Martinus J.G. Veltman won the physics prize for developing more precise calculations used to predict and confirm the existence of subatomic particles.

It is the latest in a series of Nobel prizes for researchers who are inching closer to a unified theory of the forces that control the behavior of matter and the complexities of the universe.

of Bilthoven, is professor emeritus at the University of Michigan and former professor at the University of Utrecht; 't Hooft has been a professor of physics at the University of Utrecht since 1977

Their research provided a more precise roadmap for physicists to find more subatomic particles.

Accelerators briefly recreate hot, primordial conditions in miniature, to determine whether subatomic particles behave in predicted ways, or even exist at all.

Scientists hope a new accelerator being built in Geneva will confirm the existence of a particle that Veltman and 't Hooft have suggested could be located under the right conditions.

Veltman, who acknowledged his research was often too opaque to explain to his own family, celebrated the award by smoking cigars with friends in his home.

"The main thing you have to do to get the Nobel Prize is not die," he said as companions laughed. The literature prize was awarded last Thursday to

German novelist Guenter Grass. The medicine prize was awarded Monday to Dr. Guenter Blobel of New York's Rockefeller University, who discovered how proteins find their rightful places in cells

The economics prize winner will be announced today in Stockholm and the peace prize Friday in



Chemistry • 1999

Winners since 1989

1999 Ahmed H. Zewail, United States

1994 George A. Olah, United States

1992 Rudolph A. Marcus, Canadian-born American

1990 Elias James Corey, United States

1989 Sidney Altman and Thomas Cech, United States

Officials criticized for floods

TEZIUTLAN, Mexico (AP) h Mexico's presidential camming overshadowed by disass flooding, President Ernesto dillo has warned candidates gainst trying to use the tragedy

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win political points. But the government's handling s said. the crisis has already provoked diticism, with political chalgers attacking the establishnt and governing politicians ling out at one another.

A long list of "should haves" surfaced. Dam flows should we been opened earlier; more ople should have been warned lier; deforestation should have en prevented; homes on dan-rous hillsides should have been acuated long ago.

Meanwhile, victims of last eek's flooding and mudslides, hich killed at least 350 people, e clamoring for food and water. .A. Sedillo's former interior minisr, Francisco Labastida, consid-ted the favorite in the 2000 presential elections, was criticized the front page of a major daily his week for putting his name on ergency-aid packages

Supporters of former Puebla ov. Manuel Bartlett, who also is seeking the ruling party's nominaounty distalon, reported the Labastida packges were distributed to mudslide o informe victims in Puebla state who owed their voter credentials.

Labastida's staff said yesterday at the packages had been handsaying ed out because they were immetime go lately available and were distriben your altery available and were distrib-, easily litted by the federal Family Development Fund, an agency leaded by Zedillo's wife.

> coming this Friday ... animation & video from the Viz Lab Rudder Theater 7:00 FREE

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