

The Fast Expanding Universe

Astronomers to discuss cosmological revolution

BY GABE WAGGONER
Special to The Battalion

Will the universe eventually slow down and then collapse? For many cosmologists, this question dominated astrophysical research during the 20th century.

But, thanks largely to the work of astronomers Wendy Freedman and Robert Kirshner, scientists now agree that the universe will not stop expanding and then collapse back in on itself in a "Big Crunch."

Instead, its expansion will continue indefinitely.

Freedman and Kirshner, who study the expansion of the universe, are at the frontiers of modern cosmology.

The pair will speak at Texas A&M in Rudder Theater at 10 a.m. on Friday as part of an astronomy symposium. The symposium is open to the public.

"These speakers are perhaps the two most famous active astronomers in the world. Their studies have to do with where the universe came from and where it's going," said Dr. Roland Allen, Texas A&M professor of physics. "This is as fundamental as anything in science."

Two important components make up the study of the universe's expansion — the velocity at which it occurs, referred to as the Hubble Constant, and its acceleration.

Freedman, director of the Hubble Key Project, has used the Hubble

Space Telescope to accurately measure the Hubble Constant.

Kirshner, of the Harvard-Smithsonian Center for Astrophysics, is part of a team that analyzed supernova explosions across the universe to show that the universe's expansion is accelerating.

If the universe is picking up speed as it expands, instead of slowing down as had been previously been thought, it raises the question of what force is causing it to accelerate.

"Since ordinary matter is pulled together by gravity, tending to decelerate the universe, there must be some mysterious form of 'vacuum energy' that has the opposite effect. This vacuum energy is also called the cosmological constant. Its origin is one of the greatest mysteries in science," Allen said.

Some scientists have proposed that the energy comes from invisible dark matter, which they say makes up most of the mass of the universe.

Freedman and Kirshner will speak on universal expansion as part of a joint meeting of the Texas sections of the American Association of Physics Teachers, the American Physical Society, and the Society of Physics Students. Allen said the symposium is an effort on the part of the A&M physics department to enhance students' interest in general astronomy.

Picture taken Jan. 11 - 13, 2000, using the Hubble Space Telescope's Wide Field and Planetary Camera 2. Two billion light-years away, this massive cluster of galaxies called Abell 2218 acts as a gravitational lens, bending light waves and magnifying and brightening them. This stellar magnifying glass allows astronomers like Wendy Freedman and Robert Kirshner to look at galaxies that could not be normally seen with the largest telescopes available.

Photo courtesy NASA

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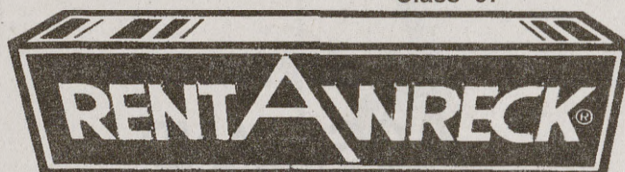
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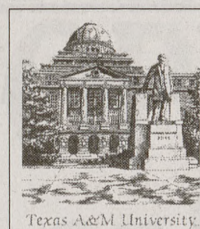
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