

Unraveling the mystery of black holes

Astronomer Tod Lauer says that black holes exist and may help form galaxies

By Amelia Williamson
THE BATTALION

Over the past few decades, astronomers have struggled with the difficulties surrounding the observation and understanding of black holes, and until now, black holes have remained a silent mystery.

Tod Lauer, an associate astronomer at the National Optical Astronomy Observatory in Tucson, Ariz., has spent many years working to uncover the mystery of black holes. Last Thursday

at a colloquium held by the Texas A&M physics department, Lauer explained to A&M students and faculty how his research has shown that black holes not only exist, but are present at the centers of many galaxies and may even be related to the creation and formation of galaxies.

Lauer is part of a 13-member team of astronomers called the Nuker Team, which was established in 1985 to use the Hubble Space Telescope to determine the center structure of galaxies and look for black holes.

Lauer said he's been interested in astronomy since he built a model of the solar system for a school project when he was 6 years old.

"I've been interested since I was a kid," Lauer said. "It was a different time. I grew up with the space program — the race to the moon — so the envi-

ronment, the time in terms of science and thinking of space, was all around."

Lauer chose to focus his research on galaxy centers and black holes for many reasons. Not much was known about black holes when Lauer began his research, and many questioned the existence of black holes due to the lack of observation and interpretation, Lauer said.

"(The existence of black holes) was a prime question ... and I thought I could do that," Lauer said. "The (Hubble) Space Telescope was going to fly, and so it was really the right time and the right place to work on this problem."

In his talk, Lauer explained that after almost two decades of work, the Nuker Team is now able to demonstrate that massive black holes lie in the center of many galaxies and that black holes can even control the central structure of galaxies. He said that the team found black holes in almost all of the galaxies in which detection was possible.

The team also found the mass of a black hole at the center of a given galaxy is roughly related to the galaxy's luminosity, the amount of light it emits, and that it is tightly related to the velocity of the stars that lie within the bulge near the center of the galaxy. This proves that galaxies and black holes found at their centers are closely connected.

"Tod Lauer's research is important because it will help predict the motion and behavior of our galaxy and of other galaxies, and will help (scientists) find out how the universe is structured," said senior physics major Robert Blessitt.



LAUER

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— Tod Lauer
associate astronomer at the National Optical Astronomy Observatory



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Astronomer **Tod Lauer** speaks to students and faculty members about the existence of black holes in relation to the formation of galaxies.

Astronomers have been working for years to figure out the formation process and evolution of galaxies. Countless amounts of research have been spent trying to unravel the truth about this mysterious process.

"(Tod Lauer's work) will help in solving the problem of how galaxies form," said A&M physics professor James White. "Senior physics major Casey Deen said he is pleased that the A&M

physics department invites prominent astronomers such as Lauer to speak at the University about their discoveries. Deen is interested in studying astronomy in graduate school and believes that having access to scientists in the field is important.

"I think that (Lauer's) trip to campus is important because it will carry interest in astronomy on campus, which will hopefully result in an astronomy major here at Texas A&M," Deen said.

The Nuker Team has linked black holes to the center of galaxies and has paved the way for future research dealing with the relationship between galaxies and black holes.

"The fact that this connects to other things in astronomy, I think, is what makes it important," Lauer said. "(The idea) that black holes may have something to do with how galaxies themselves are created is a very deep connection."

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