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For Immediate Release

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### **Latest NASA mission using Bloomsburg University professor's research**

BLOOMSBURG— Studying the origins of the solar system is NASA's latest interest and a professor from Bloomsburg University of Pennsylvania contributed their research to it. Michael Shepard, professor of environmental, geographical and geological sciences, studied 16 Psyche, an asteroid recently selected for NASA's next missions.

Shepard investigated this particular asteroid and developed the 3D model being used by the spacecraft's mission team. "It's exciting to contribute to a spacecraft mission," commented Shepard. 16 Psyche was among two missions to be selected from a top five for funding by NASA.

Using radar signals at the Arecibo Observatory in Puerto Rico, Shepard and scientists were able to define the shape and size of the asteroid. Based on the signals, they were able to calculate that it is about 150 miles wide in diameter, making it one of the largest metallic asteroids in the main belt. Shepard used this information to create a 3D model of 16 Psyche that describes the topography of the asteroid, which NASA is using. The model was recently published in scientific journal *Icarus*.

16 Psyche, the sixteenth minor planet to be discovered, is an asteroid located between Mars and Jupiter. Most asteroids are made of rock, but 16 Psyche is a unique exception made almost entirely out of nickel-iron metal. Since this asteroid is metallic, similar to most planet's cores, some theorize that it might have been a planet destroyed in early collisions, according to Shepard.

Looking at this asteroid will provide a look into how early planets may have formed as well as a window into the history of early solar system collisions. 16 Psyche is also the only place where scientists can directly study a metallic core since cores lie far below the mantles and crusts of planets. "We've never seen anything like this. It's thought to have formed the first piece of the solar system," said Shepard.

The mission is set to launch in 2023, arriving at the asteroid in 2030. Scientists believe this mission will provide an insight on how planets like Earth may have formed. "It's a very interesting mission; it's one of the few types of things we have seen in the universe."

Alongside 16 Psyche, NASA funded another mission called Lucy. Lucy, a robotic spacecraft, will visit the Trojan asteroids outside Jupiter. Both missions are set to explore the history of the early solar system.

Shepard, professor and department chair of environmental, geographical and geological sciences, has been teaching at Bloomsburg since 1995. He earned a B.S. in Physics from Vanderbilt University in 1984. He went on to earn a Ph.D. in Earth and Planetary Science from Washington University in 1994.

*Bloomsburg University is one of 14 universities in Pennsylvania's State System of Higher Education. The university serves approximately 9,600 students, offering comprehensive programs of study in the colleges of Education, Business, Liberal Arts and Science and Technology.*

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