NASA Discovers Record-Breaking Planetary System: Speeding Through Space

Description

In the center of the Milky Way, 24,000 light-years from Earth, a strange pair of objects is moving very fast through space.

Scientists believe these objects are a fast star and its planet. If confirmed, they would be the fastest exoplanet system known.

Stars in the Milky Way usually move at a few hundred thousand miles per hour, but these objects are moving at least 1.2 million miles per hour, much faster.

Astronomer Sean Terry said the star has a planet orbiting it, making it a super-Neptune system. This would be the first planet found with a high-speed star.

Scientists found these objects in 2011 using data from Microlensing Observations in Astrophysics. Gravitational microlensing helped in observing their movement.

Research in 2011 showed one object is 2,300 times more massive than the other, but their actual mass is still unknown.

Further studies using data from Keck Observatory and the Gaia satellite indicate these objects are a star system 24,000 light-years away. The star's speed is more than double that of our sun.

The study was published in The Astronomical Journal.

Vocabulary List:

1. **Exoplanet** /ˈɛk.soʊˌplæn.ɪt/ (noun): A planet that orbits a star outside the solar system.
2. **Microlensing** /ˈmaɪ.kroʊˌlɛn.zɪŋ/ (noun): A gravitational lensing effect that allows for the observation of distant astronomical objects.
3. **Massive** /ˈmæs.ɪv/ (adjective): Of considerable size extent or capacity.
4. **Observations** /ɒbˈzɜːr.veɪ.ʃənz/ (noun): The action or process of closely monitoring or watching something.
5. **Gravitational** /ˌgræv.ɪˈteɪ.ʃən.əl/ (adjective): Relating to or denoting the force of attraction between masses.
6. **Orbiting** /ˈɔːr.bɪt.ɪŋ/ (verb): Moving around another object in a circular or elliptical path.

Comprehension Questions

Multiple Choice

1. Where are the strange pair of objects located in the Milky Way?

   Option: 24,000 light-years away from Earth
   Option: Near Earth's orbit
   Option: At the center of the Earth
   Option: In a neighboring galaxy

2. What do scientists believe the objects moving fast through space are?

   Option: A fast star and its planet
   Option: A comet and an asteroid
   Option: A spaceship and an alien
   Option: Two colliding galaxies

3. How fast are the objects moving compared to typical stars in the Milky Way?

   Option: At least 1.2 million miles per hour
   Option: A few hundred thousand miles per hour
   Option: Over 3 million miles per hour
   Option: Less than 100 thousand miles per hour

4. What type of system is the star and its planet believed to be?

   Option: Super-Neptune system
   Option: Binary star system
   Option: Solar system
   Option: Black hole system

5. How were these objects discovered in 2011?

   Option: Using data from Microlensing Observations in Astrophysics
   Option: By direct observation with a telescope
   Option: Through a radio transmission
   Option: By analyzing meteorite samples

6. What is the star's speed compared to our sun according to the studies?

   Option: More than double
   Option: Less than half
   Option: Equal to
   Option: Four times faster

True-False

7. The objects moving through space are the slowest recorded in the Milky Way.

8. The star and planet system was discovered using the Hubble Space Telescope.

9. The mass of both objects in the system is accurately known.

10. The study of these objects was published in Nature magazine.

11. The objects were found orbiting a supermassive black hole in the Milky Way center.

12. Gravitational microlensing was a key method used to study the movement of the objects.

Gap-Fill

13. The objects were found in the center of the Milky Way, 24,000 light-years away from Earth. The star is more than double the speed of our sun. Further studies using data from Keck Observatory and the Gaia satellite indicate these objects are a star system 24,000 light-years away. The star's speed is more than double that of our sun. The study was published in _____.

14. One object discovered in 2011 is 2,300 times more massive than the other, but their actual mass is still _____.

15. Astronomer Sean Terry mentioned that the star has a planet orbiting it, creating a super-Neptune system. This would be the first planet found with a high-speed _____.

16. Scientists believe the strange pair of objects are a fast star and its planet. If confirmed, they would be the fastest _____ system known.

17. Stars in the Milky Way typically move at a few hundred thousand miles per hour, but these objects are

moving at least 1.2 million miles per hour, much _____ .

18. Research in 2011 showed one object is 2,300 times more massive than the other, but their actual mass is still _____ .

Answer

Multiple Choice: 1. 24,000 light-years away from Earth 2. A fast star and its planet 3. At least 1.2 million miles per hour 4. Super-Neptune system 5. Using data from Microlensing Observations in Astrophysics 6. More than double
True-False: 7. False 8. False 9. False 10. False 11. False 12. True
Gap-Fill: 13. The Astronomical Journal 14. unknown 15. star 16. exoplanet 17. faster

Vocabulary quizzes

Multiple Choice (Select the Correct answer for each question.)

1. Which disease is characterized by memory loss and cognitive decline?
   Option: Alzheimer’s
   Option: Oxygen
   Option: Activity
   Option: Evolution

2. What type of planet orbits a star outside of our solar system?
   Option: Research
   Option: Exoplanet
   Option: Astronomers
   Option: Oxygen

3. What force keeps planets in orbit around stars?
   Option: Toxins
   Option: Gravitational
   Option: Pollution
   Option: Poisonous

4. What process causes fruits to become mature and ready to eat?
   Option: Ripens
   Option: Chemicals

Option: Toxins
Option: Astronomers

5. Which type of cancer originates in glandular tissue?

Option: Evolution
Option: Adenocarcinoma
Option: Tobacco
Option: Activity

6. Which term describes something with large mass or size?

Option: Domestication
Option: Chemicals
Option: Massive
Option: Evolved

7. What is the process of taking in oxygen and expelling carbon dioxide called?

Option: Breathing
Option: Research
Option: Promising
Option: Observations

8. What is collected and analyzed to gain information?

Option: Identifying
Option: Data
Option: Strategies
Option: Ripens

9. What process describes the gradual development of something over time?

Option: Evolution
Option: Microlensing
Option: Significant
Option: Activity

10. Which substances are harmful and can cause adverse effects when present in the body?

Option: Toxins
Option: Intermediate-mass
Option: Research
Option: Breathing

Gap-Fill (Fill in the blanks with the correct word from the vocabulary list.)

11. Scientists conduct _____ to discover new findings.

12. The new treatment shows great _____ in curing the disease.

13. The _____ of animals led to changes in their behavior and genetics.

14. Some _____ in the environment can be harmful to human health.

15. _____ study celestial objects and phenomena in the universe.

16. Efforts are being made to reduce _____ levels in major cities.

17. The new discovery will have a _____ impact on the field of medicine.

18. Businesses need effective _____ to achieve success in the market.

19. Scientists make detailed _____ to understand natural phenomena.

20. The _____ force between planets keeps them in their orbits.

Matching Sentences (Match each definition to the correct word from the vocabulary list.)

21. Species have over time to adapt to their environments.
22. is a technique used by astronomers to discover distant planets.
23. key characteristics is important in classifying different species.
24. Astronomers use various methods to detect new beyond our solar system.
25. Regular physical is important for maintaining good health.
26. Some plants produce substances to deter herbivores from eating them.
27. The new drug has shown results in early trials.
28. Living organisms require for respiration and survival.
29. Long-term use of products can lead to serious health issues.
30. Stars with have properties between low-mass and high-mass stars.

Answer

Multiple Choice: 1. Alzheimer's 2. Exoplanet 3. Gravitational 4. Ripens 5. Adenocarcinoma 6. Massive 7. Breathing 8. Data 9. Evolution 10. Toxins
Gap-Fill: 11. Research 12. Promise 13. Domestication 14. Chemicals 15. Astronomers 16. Pollution 17. Significant 18. Strategies 19. Observations 20. Gravitational
Matching sentence: 1. Evolved 2. Microlensing 3. Identifying 4. Exoplanet 5. Activity 6. Poisonous 7. Promising 8. Oxygen 9. Tobacco 10. Intermediate-mass

CATEGORY

1. Health - LEVEL2

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