New Survey Reveals Hundreds of Missing Black Hole Links

Description

A recent survey has discovered a large number of black holes hidden in dwarf galaxies in space. Astronomers found 2,444 active black holes, including 298 intermediate-mass black holes, which are important for understanding the cosmos. These black holes are between stellar-mass and supermassive black holes in size.

By using the Dark Energy Spectroscopic Instrument, scientists were able to study small galaxies closely and identify active black holes within them. These black holes release a lot of energy when they feed, making them easier to spot.

The discovery of these black holes challenges our current understanding of how galaxies and black holes evolve together. The findings may help answer questions about the formation of black holes and their connection to different types of galaxies.

This research, published in The Astrophysical Journal, provides valuable insights into the role of black holes in the universe and how they impact galaxy evolution.

Vocabulary List:

1. **Astronomers** /əˈstrɒn.ə.mərz/ (noun): Scientists who study celestial bodies and the universe.
2. **Intermediate-mass** /ˌɪn.təˈmiːd.i.ət mæs/ (adjective): Referring to black holes that are between stellar-mass and supermassive in size.
3. **Cosmos** /ˈkɒz.mɒs/ (noun): The universe seen as a well-ordered whole.
4. **Identifying** /aɪˈdɛn.tɪ.faɪ.ɪŋ/ (verb): Recognizing or establishing what something is.
5. **Insights** /ˈɪn.saɪts/ (noun): Understanding of the true nature of something.
6. **Evolution** /ˌɛv.əˈluː.ʃən/ (noun): The gradual development of something especially from a simple to a more complex form.

Comprehension Questions

Multiple Choice

1. How many active black holes were found in the recent survey?

Option: 1,234
Option: 2,444
Option: 3,678
Option: 4,567

2. What makes the identification of active black holes in dwarf galaxies easier?

Option: They emit visible light
Option: They release a lot of energy when they feed
Option: They are larger in size
Option: They are stationary

3. What type of black holes were found in the dwarf galaxies?

Option: Supermassive black holes
Option: Stellar-mass black holes
Option: Intermediate-mass black holes
Option: Micro black holes

4. Which instrument was used to study small galaxies and identify active black holes?

Option: Hubble Space Telescope
Option: Chandra X-ray Observatory
Option: Dark Energy Spectroscopic Instrument
Option: James Webb Space Telescope

5. What publication featured the research on the discovery of black holes in dwarf galaxies?

Option: Nature
Option: Science
Option: The Astrophysical Journal
Option: Monthly Notices of the Royal Astronomical Society

6. How do the discovered black holes challenge current understanding?

Option: They are smaller than expected
Option: Their behavior is unpredictable
Option: They are found in unexpected locations
Option: They impact galaxy evolution in unexpected ways

True-False

7. The discovery of black holes in dwarf galaxies is insignificant in understanding the cosmos.

8. The black holes found in the survey were mainly supermassive black holes.

9. The research on black holes challenges the connection between galaxies and black holes.

10. Astronomers were able to spot the black holes easily because of their size.

11. The energy released by the active black holes aided in their identification.

12. The research was published in a journal specializing in climate science.

Gap-Fill

13. Astronomers found _____ active black holes in the recent survey.

14. The intermediate-mass black holes discovered are between stellar-mass and _____ black holes in size.

15. The Dark Energy Spectroscopic Instrument was used to study small galaxies and identify active black holes within them, making the identification process easier due to the energy released when they _____.

16. The discovery of black holes in dwarf galaxies challenges our current understanding of how galaxies and black holes _____ together.

17. The findings of the research may help answer questions about the formation of black holes and their connection to different types of _____.

18. The research published in The Astrophysical Journal provides valuable insights into the role of black holes in the universe and how they impact galaxy _____.

Answer

Multiple Choice: 1. 2,444 2. They release a lot of energy when they feed 3. Intermediate-mass black holes 4. Dark Energy Spectroscopic Instrument 5. The Astrophysical Journal 6. They impact galaxy evolution in unexpected ways

True-False: 7. False 8. False 9. True 10. False 11. True 12. False
Gap-Fill: 13. 2,444 14. supermassive 15. feed 16. evolve 17. galaxies 18. evolution

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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