



---

# Astronomers' Find Challenges Cosmological Theories: Distant Milky Way-Like Galaxy

## Description

Please register for CNN's Wonder Theory science bulletin. Delve into the cosmos with updates on captivating revelations, scientific breakthroughs, and more.

Scientists have uncovered a remote disc galaxy, dubbed REBELS-25, bearing striking similarities to our own Milky Way. This discovery challenges existing notions of galaxy formation, as the galaxy appears significantly more structured and organized than anticipated for its age. Despite being younger than the Milky Way, REBELS-25 already mirrors its rotation and composition, defying the disordered appearance typically associated with early galaxies.

Jacqueline Hodge, an astronomer at Leiden University, noted that conventional galaxy formation models predict early galaxies to be small and chaotic, gradually evolving over billions of years into orderly structures like those seen today. The light from REBELS-25, emitted just 700 million years after the universe's birth, showcases an unexpectedly swift transformation to a coherent state.

Lucie Rowland, the lead author of the study and a doctoral student at Leiden University, emphasized the galaxy's rotation-dominated nature as a revelation challenging the current understanding of early universe evolution. Observations conducted with the Atacama Large Millimeter/submillimeter Array (ALMA) telescope in Chile have unveiled potential advanced features like spiral arms, warranting further investigation.

Although REBELS-25 represents a unique find, Andrew Blain, a professor of astrophysics at the University of Leicester, underscores the need for additional research to refine our comprehension of galaxy formation processes. As scientists ponder the implications of this discovery, unanswered questions linger regarding the prevalence and implications of galaxies like REBELS-25 in the grand cosmic narrative.

This groundbreaking research, available as a preprint, awaits publication in the esteemed journal Monthly Notices of the Royal Astronomical Society.



---

---

## Vocabulary List:

1. **Revelation** /ˌrɛv.ə'leɪ.ʃən/ (noun): A surprising and previously unknown fact that has been disclosed.
2. **Conventional** /kən'venʃənəl/ (adjective): Based on or in accordance with what is generally done or believed.
3. **Chaos** /'keɪ.ɒs/ (noun): Complete disorder and confusion.
4. **Prevalence** /'prɛv.ə.ləns/ (noun): The fact or condition of being widespread or common.
5. **Transformation** /ˌtræns.fər'meɪ.ʃən/ (noun): A thorough or dramatic change in form or appearance.
6. **Implication** /ˌɪm.plɪ'keɪ.ʃən/ (noun): The conclusion that can be drawn from something although it is not explicitly stated.

## Comprehension Questions

### Multiple Choice

1. Who discovered the remote disc galaxy REBELS-25?  
Option: Jacqueline Hodge  
Option: Lucie Rowland  
Option: Andrew Blain  
Option: Unnamed Scientist
2. What is the name of the telescope used for observations of REBELS-25?  
Option: Hubble Space Telescope  
Option: Atacama Large Millimeter/submillimeter Array (ALMA)  
Option: Kepler Space Telescope  
Option: Chandra X-ray Observatory
3. Which university is Lucie Rowland affiliated with?  
Option: University of Leicester  
Option: Leiden University  
Option: University of Chile  
Option: Tata Institute of Fundamental Research
4. What is the age of the universe when the light from REBELS-25 was emitted?  
Option: 100 million years  
Option: 700 million years



- Option: 2 billion years
- Option: 5 billion years

5. What journal is the groundbreaking research on REBELS-25 set to be published in?

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

6. What does the discovery of REBELS-25 challenge?

- Option: Existence of black holes
- Option: Notions of galaxy formation
- Option: The laws of physics
- Option: The expansion of the universe

### True-False

7. REBELS-25 is older than our Milky Way galaxy.

8. Lucie Rowland is a professor of astrophysics.

9. The light from REBELS-25 was emitted approximately 700 million years after the Big Bang.

10. Andrew Blain expresses the need for additional research to deepen our understanding of galaxy formation processes.

11. The research on REBELS-25 is currently available for public access.

12. REBELS-25 showcases an expectedly chaotic appearance for its age.

### Gap-Fill

13. Jacqueline Hodge works at \_\_\_\_\_ University.

14. The light from REBELS-25 was emitted just \_\_\_\_\_ million years after the universe's birth.



15. Lucie Rowland is the lead author of the research conducted at \_\_\_\_\_ University.
16. Andrew Blain, a professor of astrophysics, emphasizes the need for additional research to refine our comprehension of galaxy formation processes beyond the initial discovery of REBELS-25 to unravel its implications in the grand cosmic \_\_\_\_\_.
17. The discovery of REBELS-25 challenges conventional galaxy formation models, which anticipate early galaxies to be \_\_\_\_\_ and chaotic.
18. Observations conducted with the Atacama Large Millimeter/submillimeter Array (ALMA) telescope in \_\_\_\_\_ have unveiled potential advanced features of REBELS-25.

## Answer

**Multiple Choice:** 1. Jacqueline Hodge 2. Atacama Large Millimeter/submillimeter Array (ALMA) 3. Leiden University 4. 700 million years 5. Monthly Notices of the Royal Astronomical Society 6. Notions of galaxy formation

**True-False:** 7. False 8. False 9. True 10. True 11. False 12. False

**Gap-Fill:** 13. Leiden 14. 700 16. narrative 17. small 18. Chile

## Vocabulary quizzes

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

1. What term refers to the arrangement of parts or elements in a particular form figure or combination?
- Option: A) List  
Option: B) Comprehension  
Option: C) Configuration  
Option: D) Chaos
2. Which word means to change something radically or fundamentally?



- 
- Option: A) Revelation  
Option: B) Revolutionize  
Option: C) Genesis  
Option: D) Mainstream
3. What term describes the introduction of something new?  
Option: A) Mainstream  
Option: B) Achievement  
Option: C) Availability  
Option: D) Innovation
4. Which term refers to the origin or mode of formation of something?  
Option: A) Chaos  
Option: B) Transformation  
Option: C) Genesis  
Option: D) Monumental
5. What word is used to describe something that is beginning to become prominent or important?  
Option: A) Durability  
Option: B) Emerging  
Option: C) Available  
Option: D) Prevalence
6. Which term describes a state of perplexity or uncertainty over what to do in a difficult situation?  
Option: A) Unforeseen  
Option: B) Quandary  
Option: C) Revelation  
Option: D) Cosmos
7. Which term refers to the ability of something to withstand wear pressure or damage?  
Option: A) Conventional  
Option: B) Durability  
Option: C) Implication  
Option: D) Revolutionize
8. What term means the fact or condition of being widespread or generally accepted?  
Option: A) Transformation  
Option: B) Availability  
Option: C) Mainstream  
Option: D) Prevalence
9. Which word describes something that is exceptional in size extent or degree?  
Option: A) Cosmos



- Option: B) Monumental
- Option: C) Revelation
- Option: D) Configuration

10. What term describes a likely consequence of an action or condition?

- Option: A) Unforeseen
- Option: B) Phenomena
- Option: C) Implication
- Option: D) Achievement

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

11. The \_\_\_\_\_ is the vast expanse of space that contains all matter and energy in existence.
12. Please provide a detailed \_\_\_\_\_ of the items you wish to purchase.
13. Winning the championship was a great \_\_\_\_\_ for the team after years of hard work.
14. The latest model of the smartphone will be \_\_\_\_\_ for purchase starting next month.
15. The new technology aims to completely \_\_\_\_\_ the way we approach everyday tasks.
16. After the unexpected announcement the meeting descended into \_\_\_\_\_.
17. Understanding the \_\_\_\_\_ of the conflict is crucial to finding a resolution.
18. The marketing team targeted a specific \_\_\_\_\_ of the population with their new campaign.
19. The \_\_\_\_\_ left by the meteor impact was visible from miles away.
20. The company has officially \_\_\_\_\_ environmentally friendly practices into its operations.

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

21. The sudden storm was an event that caught everyone by surprise.



22. The northern lights are a natural that amazes observers with its colorful display.
23. The geologist discovered a rare rock formation known as during the expedition.
24. The scientist analyzed the samples and found traces of rare element present in the meteorite.
25. Students were tested on their of the complex theories discussed in class.
26. The discovery of the hidden cave paintings was a shocking to the archaeological team.
27. The once niche product has now moved into the market with widespread acceptance.
28. The old building underwent a remarkable into a modern office space.
29. The lack of leadership led to complete within the ranks of the organization.
30. The artist chose to break away from painting styles and embrace new forms of artistic expression.

## Answer

**Multiple Choice:** 1. C) Configuration 2. B) Revolutionize 3. D) Innovation 4. C) Genesis 5. B) Emerging  
6. B) Quandary 7. B) Durability 8. D) Prevalence 9. B) Monumental 10. C) Implication

**Gap-Fill:** 11. Cosmos 12. List 13. Achievement 14. Available 15. Revolutionize 16. Chaos 17. Genesis  
18. Segment 19. Crater 20. Incorporated

**Matching sentence:** 1. Unforeseen 2. Phenomena 3. Pseudotachylite 4. Iridium 5. Comprehension 6.  
Revelation 7. Mainstream 8. Transformation 9. Chaos 10. Conventional

## CATEGORY

1. Sci/Tech - LEVEL6

### Date Created

2024/10/17

### Author

aimeeyoung99