



Oxford Scientists Claim a Fundamental Physics Rule is Incorrect

Description

Physicists know that opposite charges attract and like charges repel. However, scientists at the University of Oxford now say this might not be always true. They have found that under certain conditions, like-charged particles can also attract each other. This research was published in the journal, "Nature Nanotechnology".

The scientists made this discovery when they were studying charged particles in water. They found that negatively charged particles surprisingly attracted each other, forming clusters. Yet, positively charged particles did not.

They believe this is because there is a special force in water that causes these particles to attract each other. However, this force does not affect positively charged particles. Getting to observe this behavior was really exciting for the researchers.

But what happens if the particles are not in water? The scientists tried this by using alcohol instead. Interestingly, in alcohol, positively charged particles formed clusters, while negatively charged ones did not.

This study changes the way we understand charged particles. It can even help explain why some medicines and chemicals are stable or how diseases develop. The scientists were also able to measure the charge caused by the solvents. People used to think that was impossible.

The lead scientist, Professor Madhavi Krishnan, said she's really proud of her team for making this discovery. She believes it is a significant change in physics.

Vocabulary List:

1. **Opposite charges** // (noun): Electric charges of different signs positive and negative charges.
2. **Repel** // (verb): To push away or force apart.
3. **Clusters** // (noun): Groups or bunches of things close together.
4. **Solvents** // (noun): Substances that dissolve other substances.
5. **Stable** // (adjective): Not likely to change or fail firmly established.
6. **Significant** // (adjective): Important or of consequence.

Vocabulary quizzes

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



1. Who are professionals specialized in the study of matter and the changes it undergoes?

- Option: Compound
- Option: Metabolites
- Option: Organisms
- Option: Chemists

2. What term is used to describe the process of growth or advancement?

- Option: Break away
- Option: Independent
- Option: Development
- Option: Understanding

3. What activity involves investigating or discovering new places or ideas?

- Option: Exploring
- Option: Surprised
- Option: Excitedly
- Option: Opposite charges

4. What do particles with opposite charges do when they come near each other?

- Option: Clusters
- Option: Repel
- Option: Solvents
- Option: Stable

5. What word describes something that holds importance or meaning?

- Option: Significant
- Option: Cohere
- Option: AI
- Option: F-150

6. What are obstacles or difficulties that need to be overcome?

- Option: Competitors
- Option: Sectors
- Option: Challenges
- Option: Orcas

7. Which term is associated with the sea or ocean?

- Option: Behaviour
- Option: Surprising
- Option: Environment
- Option: Marine



8. Environment protection is mandated in which sector?

- Option: Surprising
- Option: Marine
- Option: Overlap
- Option: Environmental

9. How would you feel when you are surprised in a positive way?

- Option: Excited
- Option: Orcas
- Option: Behaviour
- Option: Surprising

10. What term describes a situation that is not easily changed or disturbed?

- Option: Overlap
- Option: Stable
- Option: AI
- Option: F-150

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

11. Particles in the nucleus _____ together due to strong forces.

12. _____ technologies are advancing rapidly in various industries.

13. The study of animal _____ helps scientists understand their interactions.

14. There is an _____ between the habitats of polar bears and seals.

15. In order to progress sometimes you need to _____ from the usual routine.

16. Studies show that varying temperatures impact the growth of _____ in the ecosystem.

17. The team was _____ by the unexpected results of the experiment.

18. _____ are used to dissolve other substances to create solutions.

19. The body breaks down food into essential _____ for energy production.



20. Stars form _____ in galaxies due to gravitational forces.

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

21. A is a non-protein compound that is necessary for the functioning of an enzyme.
22. Particles with _____ tend to attract each other.
23. In space stars often group together to form cosmic _____.
24. _____ are substances capable of dissolving other materials to form solutions.
25. Companies in the same industry often compete as _____.
26. The economy can be divided into different _____ based on the types of products and services.
27. _____ are known for their complex social structure and hunting techniques.
28. The research findings had a _____ impact on the field of medicine.
29. The children ran to see their favorite performer on stage.
30. Facing and overcoming _____ helps individuals and organizations grow.

Answer

Multiple Choice: 1. Chemists 2. Development 3. Exploring 4. Repel 5. Significant 6. Challenges 7. Marine 8. Environmental 9. Excited 10. Stable

Gap-Fill: 11. cohere 12. AI 13. behaviour 14. overlap 15. break away 16. organisms 17. surprised 18. solvents 19. metabolites 20. clusters

Matching sentence: 1. coenzyme 2. opposite charges 3. clusters 4. solvents 5. competitors 6. sectors 7. orcas 8. significant 9. excitedly 10. challenges

CATEGORY

1. Sci/Tech - LEVEL2

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