



Scientists just created the strongest magnetic field in the universe

Description

Magnetars are a unique type of neutron star with a magnetic field that's trillions of times stronger than the Earth's. For example, if you get closer to a magnetar than about 1,000km, it could completely destroy your body! Shockingly, scientists have found potential zones on Earth that experience flashes of magnetism even stronger than a magnetar's.

How is this possible, you ask? The answer lies in the US Department of Energy's Brookhaven National Laboratory, home of the Relativistic Heavy Ion Collider (RHIC). Here, scientists have discovered evidence of extraordinary magnetic fields after colliding nuclei of various heavy ions.

They hope to learn more about atoms by observing the movement of smaller particles - quarks, which are the building blocks of all visible matter, and gluons, the particles that binds quarks together. Another discovery of antimatter and its interaction with the field is giving us significant insights into the structure of the universe.

To study these particles, physicists needed a super-strong magnetic field. They achieved this by using the RHIC to collide heavy atomic nuclei, specifically gold. This created an electric current in the quarks and gluons, resulting in a new method for studying this "quark-gluon plasma".

One of the physicists, Diyu Shen, believes this can help scientists further understand the intricacies of the building blocks of life. In fact, these collisions created a magnetic field that is likely the strongest in the universe, easily outperforming magnetars.

However, observing the field wasn't possible due to its brief existence. So instead, they watched the movement of charged particles. Aihong Tang, another physicist at the lab, confirmed these observations were a clear sign of a magnetic field being formed where the heavy ions collided.

Now, thanks to this discovery, they can find out more about the QGP's conductivity. According to Shen, this property is fundamental and measuring it was never done before. The scientists will use the data on how much the particles are deflected to determine the strength of the electromagnetic field and the conductivity in the QGP.

So these heavy ion collisions have not only helped scientists generate the strongest magnetic field observed, but might also lead to breakthroughs in our understanding of the universe!

Vocabulary List:

1. **Magnetars** // (noun): A unique type of neutron star with an extremely strong magnetic field.
2. **Neutron Star** // (noun): A celestial body that consists primarily of neutrons.



3. **Magnetic Field** // (noun): A region around a magnetic material or a moving electric charge where the force of magnetism acts.
4. **Quarks** // (noun): Elementary particles that are the fundamental building blocks of matter.
5. **Gluons** // (noun): Elementary particles that mediate the strong force between quarks binding them together within protons and neutrons.
6. **Antimatter** // (noun): Matter composed of antiparticles which have the same mass as particles of ordinary matter but opposite charges and other properties.

Vocabulary quizzes

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

1. Which astronomical objects are known for their extremely strong magnetic fields?
Option: Neutron Stars
Option: Quarks
Option: Dinosaurs
Option: Fossils
2. What is the opposite of normal matter in particle physics?
Option: Innovative
Option: Antimatter
Option: Intelligent
Option: Quality
3. Which term best describes someone who is widely acclaimed and honored?
Option: Resonate
Option: Renowned
Option: Transparent
Option: Given back
4. What term is used when an event or transaction is terminated before completion?
Option: Refunded
Option: Dinosaur
Option: Cancellation
Option: Construct
5. Which word describes a person who is committed and devoted to a cause or purpose?



- Option: Postponing
- Option: Dedicated
- Option: Legitimate
- Option: Construct

6. Which term best describes something beyond the ordinary or usual?

- Option: Refunded
- Option: Quality
- Option: Extraordinary
- Option: Given back

7. Which word means to watch carefully or attentively?

- Option: Integrate
- Option: Observe
- Option: Intelligent
- Option: Crests

8. Which term is used in biology to classify a group of organisms that can interbreed and produce fertile offspring?

- Option: Magnetic Field
- Option: Species
- Option: Fossil
- Option: Quality

9. Which word describes something complex intricate and advanced?

- Option: Replicas
- Option: Sophisticated
- Option: Magnetars
- Option: Legitimate

10. What quality is demonstrated by a person who is firm in purpose and resolute in achieving their goals?

- Option: Transparent
- Option: Cancellation
- Option: Given back
- Option: Determination

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

11. Companies strive to remain _____ to stay ahead of the competition.

12. The engineers are planning to _____ a new bridge over the river next year.



13. The brand is known for its exceptional _____ and reliability.
14. If you are not satisfied with your purchase you can get your money _____.
15. The government promised to ensure _____ in its decision-making processes.
16. Due to bad weather the outdoor concert has been _____ until next week.
17. The library allows books to be _____ after the due date with a small fine.
18. The waves began to _____ as the storm approached the shore.
19. She solved the difficult puzzle with her _____ problem-solving skills.
20. The company assured customers that the product was _____ and met all safety standards.

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

21. Subatomic particles that are exchanged to "carry" the strong force between quarks.
22. Preserved remains or impressions of organisms that lived in the past.
23. A region around a magnetic material where magnetic forces are detected.
24. Exact copies or models of something that existed in the past.
25. To build or create something especially systematically and in steps.
26. Material composed of antiparticles opposite to those of normal matter.
27. Having the skill and creativity to introduce new methods or ideas.
28. Returned to the original owner or giver.
29. Extinct reptiles that lived on Earth millions of years ago.
30. The standard of something as measured against other things of a similar kind; the degree of excellence.



Answer

Multiple Choice: 1. Neutron Stars 2. Antimatter 3. Renowned 4. Cancellation 5. Dedicated 6. Extraordinary 7. Observe 8. Species 9. Sophisticated 10. Determination

Gap-Fill: 11. Innovative 12. Construct 13. Quality 14. Refunded 15. Transparency 16. Postponed 17. Given back 18. Crest 19. Intelligent 20. Legitimate

Matching sentence: 1. Gluons 2. Fossils 3. Magnetic Field 4. Replicas 5. Construct 6. Antimatter 7. Innovative 8. Given back 9. Dinosaur 10. Quality

CATEGORY

1. Sci/Tech - LEVEL3

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