



Bend light with cloud-inspired material: corner-turning breakthrough

Description

Scientists have found a new way to make light bend around corners, which could help in medical imaging, electronics cooling, and designing nuclear reactors. This idea was inspired by how clouds scatter sunlight.

Daniele Faccio and his team at the University of Glasgow created objects using a special material that can bend light. When light hits this material, it travels through clear tunnels and gets scattered just like in clouds or snow. But instead of scattering randomly, the light is directed back to the tunnels by the material.

These objects work like fibre optic cables but in a different way. They boost light transmission significantly and allow light to be guided around curves. Though not as efficient as traditional fibre optics, this method is simple and cost-effective.

This light-bending technique could be used in medical imaging and engineering applications like cooling systems and nuclear reactors. Faccio believes this discovery could have been made long ago and has many practical applications.

Vocabulary List:

1. **Transmission** /trænz'mɪʃ.ən/ (noun): The act or process of sending or conveying something especially light or signals.
2. **Scattered** /'skæt.əd/ (verb): To distribute or spread over a wide area.
3. **Directed** /dɪ'rek.tɪd/ (verb): To control the course or direction of something.
4. **Efficient** /ɪ'fɪʃ.ənt/ (adjective): Performing tasks in a well-organized and competent way minimizing waste.
5. **Applications** /,æp.lɪ'keɪ.ʃənz/ (noun): The practical use of something especially in a specific situation.
6. **Materials** /mə'tɪə.ri.əlz/ (noun): Substances or components with certain properties used for making things.

Comprehension Questions

Multiple Choice

1. What is the main inspiration behind the new light-bending technique?
Option: Clouds scattering sunlight
Option: Snow reflecting light



- Option: Water bending light
- Option: Metallic surfaces absorbing light

2. How do objects created using the special material bend light?

- Option: By absorbing light
- Option: By creating barriers
- Option: By scattering light in clear tunnels
- Option: By reflecting light randomly

3. What is one potential application of the light-bending technique mentioned in the text?

- Option: Designing skyscrapers
- Option: Enhancing smartphone screens
- Option: Cooling systems in electronics
- Option: Creating artificial intelligence

4. In what way do these light-bending objects work similarly to fibre optic cables?

- Option: By absorbing light
- Option: By creating reflections
- Option: By boosting light transmission
- Option: By changing light color

5. According to the text, what is one benefit of the new light-bending method?

- Option: Higher cost
- Option: Complex design
- Option: Efficient functionality
- Option: Limited practicality

6. Who is credited with creating objects using the special material that bends light?

- Option: Albert Einstein
- Option: Marie Curie
- Option: Daniele Faccio
- Option: Thomas Edison

True-False

- 7. The light-bending technique could potentially be utilized in medical imaging applications.
- 8. The light-bending technique was discovered accidentally.



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9. The special material used in creating the light-bending objects scatters light randomly.
10. The new light-bending method is more expensive than traditional fibre optics.
11. The creator of the light-bending objects believes the discovery could have been made earlier.
12. The light-bending objects work exactly like traditional fibre optic cables.

Gap-Fill

13. The light-bending technique could be beneficial for _____ imaging.
14. The objects created using the special material boost light transmission significantly and allow light to be guided around _____.
15. Though not as efficient as traditional fibre optics, the new method is simple and _____.
16. Faccio and his team at the University of Glasgow are credited with developing objects that can bend light through clear _____.
17. The light-bending technique has potential applications in designing nuclear _____.
18. The special material used by Faccio and his team directs light back to the tunnels to enhance light _____.

Answer

Multiple Choice: 1. Clouds scattering sunlight 2. By scattering light in clear tunnels 3. Cooling systems in electronics 4. By boosting light transmission 5. Efficient functionality 6. Daniele Faccio

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

Gap-Fill: 13. medical 14. curves 15. cost-effective 16. tunnels 17. reactors 18. transmission

Vocabulary quizzes



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

1. Which process involves the transfer of signals from one point to another?
Option: Harvesting
Option: Transmission
Option: Grooming
Option: Emissions
2. Which term refers to something made by humans and not occurring naturally?
Option: Conversion
Option: Efficient
Option: Scattered
Option: Artificial
3. What does the term "demographics" refer to in a specific area or among a group of people?
Option: Changes
Option: Era
Option: Population
Option: Equivalence
4. What is the action of informing someone about something officially?
Option: Limit
Option: Regulate
Option: Notification
Option: Assistance
5. Which term is related to the process of preparing someone or something for a particular purpose or function?
Option: Directed
Option: Inappropriately
Option: Targeted
Option: Grooming
6. What constitutes the long-term pattern of temperature humidity and precipitation in an area?
Option: Challenge
Option: Climate
Option: Harmful
Option: Platforms
7. What are physical substances used to make things like wood metal or fabric called?
Option: Incidents
Option: Materials



Option: Applications
Option: Transmission

8. Which term describes the ability to accomplish a task with minimal waste or effort?

Option: Emissions
Option: Sustainable
Option: Generation
Option: Efficient

9. What are specific occurrences or events especially suspected or undesirable ones called?

Option: Incidents
Option: Transmission
Option: Era
Option: Changes

10. Which term refers to the different systems or technologies that support a particular application?

Option: Equivalence
Option: Notification
Option: Generation
Option: Platforms

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

11. The Industrial Revolution was a period of significant change in the _____.

12. The primary purpose of a passport is to _____ a person.

13. GPS technology allows us to _____ the location of vehicles in real-time.

14. Laws and regulations are put in place to _____ certain industries.

15. The _____ of electricity from renewable sources is crucial for a sustainable future.

16. Language barriers can be overcome with the help of professional _____ services.

17. Proper _____ of resources is essential for a project to succeed.

18. Speed limits are implemented to ensure road safety and _____ accidents.

19. During emergencies people often require immediate medical _____.



20. Exposure to certain chemicals can have _____ effects on human health.

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

21. The leaves were all over the yard after the windstorm.
22. The coach the team to focus on defense during the final minutes of the game.
23. The marketing campaign was specifically at young adults interested in fitness.
24. Using renewable energy sources is crucial for a future.
25. In mathematics the principle of states that two things are equal in value.
26. Overcoming obstacles and difficulties is a common in life.
27. An official was sent to all employees regarding the upcoming company meeting.
28. The software has various practical for both personal and business use.
29. The constant evolution of technology brings about significant in our daily lives.
30. A was issued to residents warning them of the approaching hurricane.

Answer

Multiple Choice: 1. Transmission 2. Artificial 3. Population 4. Notification 5. Grooming 6. Climate 7. Materials 8. Efficient 9. Incidents 10. Platforms

Gap-Fill: 11. Era 12. Identify 13. Track 14. Regulate 15. Generation 16. Translation 17. Organization 18. Limit 19. Assistance 20. Harmful

Matching sentence: 1. Scattered 2. Directed 3. Targeted 4. Sustainable 5. Equivalence 6. Challenge 7. Notification 8. Applications 9. Changes 10. Notification

CATEGORY

1. Sci/Tech - LEVEL2

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