

CNN News Highlights — Sound Waves

1) invisibility	2) medium	3) state	4) teleportation	5) vacuum	6) vibrate or transmit
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Pop quiz hot shot: Through which ____ are sound waves unable to travel? Solids, liquids, a ____, or gases?

If you said vacuum, put your hands up. Sound waves need to travel through a ____, and there are no particles of matter present to ____ sound waves in a vacuum.

All right, if you could have any superpower, what would it be? ____, ____, time travel? Might be a good question to ask each other and give your reasons why.

1) cracked the code	2) extraordinary	3) levitation	4) practices	5) revolutionize	6) startup
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Well, if ____ is something that you think would be ____, it may soon become ordinary. Scientists haven't quite ____ on moving objects with the mind, but they may be on to the next best thing. Moving objects with sound waves.

Our Nick Valencia shows us how a London-based ____ is using sound to one day maybe ____ everyday ____ in science.

1) acoustic	2) blue-sky idea	3) commercial opportunity	4) float objects	5) out of the ordinary	6) ultrasound
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Levitating liquids and objects using just sound waves. Sounds ____, even magical. But a London-based startup says this could be revolutionary.

We've been working on ____ levitation for the last decade or decade and a half. We -- yes, we've always been looking and exploring at ways in which we can ____ in mid-air using ____.

And it was always a ____ until about a year ago when some of my co-founders were saying, oh, maybe there's a ____ for this.

1) acoustic holography	2) a range of tiny speakers	3) computationally	4) generate	5) perfected	6) time intervals
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AcoustoFab has ____ the ability to pick up a droplet or a small particle, adjust it mid-air, then move it to a specific location doing all of this with only using sound waves.

The new technology uses ____ set at 40khz to ____ the sound waves, outside of the audible range for humans.

The magic trick is we time the turning on and off of each individual speaker precisely. So when we turn them on and off at different ____, they create a pattern and we can ____ using ____, shape the sound field in the far field however you want.

1) academic use	2) demonstrating	3) held in place	4) research labs	5) transducers	6) wavelength
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So for example, we can make them all come together to a point and they can we can make ____ from the bottom and from the top come to two different points that are half a ____ apart. Then if you put an object there, it's going to be ____.

AcoustoFab has been ____ their sound levitation kit at tech fairs around the world. They say ____ can buy a basic kit for ____, starting at \$3,100.

Translation

快問快答：聲波無法通過哪種狀態傳播？固體、液體、真空還是氣體？

如果你的答案是真空，那就舉手吧。聲波需要通過介質傳播，而在真空中沒有物質粒子來振動或傳遞聲波。

好吧，如果你可以擁有任何超能力，你會選擇什麼？瞬間移動、隱形、時間旅行？這可能是一個很好的問題，彼此詢問並給出你的理由。

嗯，如果你認為懸浮是一種非凡的能力，它可能很快就會變得平凡。科學家們尚未完全破解用心智移動物體的秘訣，但他們可能正在探索下一個最佳方案——用聲波移動物體。

我們的 **Nick Valencia** 將帶我們了解一家位於倫敦的初創公司如何利用聲音，有朝一日可能革新科學領域的日常實踐。

僅用聲波懸浮液體和物體。聽起來不尋常，甚至有些神奇。但一家位於倫敦的初創公司表示，這可能是革命性的。

「過去十年或十幾年，我們一直在研究聲學懸浮。我們——是的，我們一直在尋找和探索如何用超聲波使物體在空中懸浮的方法。

這一直是一個遙不可及的理想，直到大約一年前，我的一些聯合創始人開始說，也許這有商業機會。」

AcoustoFab 已經完善了用聲波拾取液滴或小顆粒、在空中調整它們，然後將它們移動到特定位置的能力，所有這些都僅僅使用聲波來完成。

這項新技術使用一系列設置在 **40kHz** 的微小揚聲器來產生聲波，這些聲波超出了人類的可聽範圍。

魔術在於我們精確地計時每個揚聲器的開啟和關閉。因此，當我們以不同的時間間隔開啟和關閉它們時，會產生一個模式，我們可以通過聲學全息技術在遠場中計算性地塑造聲場，隨你所願。

例如，我們可以讓它們全部聚集到一個點，並且我們可以讓來自下方和上方的換能器分別聚集到相距半個波長的兩個不同點。然後，如果你將一個物體放在那裡，它將被固定在原地。

AcoustoFab 已在全球各地的科技展覽中展示他們的聲音懸浮套件。他們表示，研究實驗室可以購買基本套件用於學術用途，價格從 **3,100 美元** 起。



You can view this activity online at this link:

<https://linguadox.com/2024/12/28/sound-waves/>

Answers

1) invisibility	2) medium	3) state	4) teleportation	5) vacuum	6) vibrate or transmit
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Pop quiz hot shot: Through which **3) state** are sound waves unable to travel? Solids, liquids, a **5) vacuum**, or gases?

If you said vacuum, put your hands up. Sound waves need to travel through a **2) medium**, and there are no particles of matter present to **6) vibrate or transmit** sound waves in a vacuum.

All right, if you could have any superpower, what would it be? **4) Teleportation**, **1) invisibility**, time travel? Might be a good question to ask each other and give your reasons why.

1) cracked the code	2) extraordinary	3) levitation	4) practices	5) revolutionize	6) startup
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Well, if **3) levitation** is something that you think would be **2) extraordinary**, it may soon become ordinary. Scientists haven't quite **1) cracked the code** on moving objects with the mind, but they may be on to the next best thing. Moving objects with sound waves.

Our Nick Valencia shows us how a London-based **6) startup** is using sound to one day maybe **5) revolutionize** everyday **4) practices** in science.

1) acoustic	2) blue-sky idea	3) commercial opportunity	4) float objects	5) out of the ordinary	6) ultrasound
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Levitating liquids and objects using just sound waves. Sounds **5) out of the ordinary**, even magical. But a London-based startup says this could be revolutionary.

We've been working on **1) acoustic** levitation for the last decade or decade and a half. We -- yes, we've always been looking and exploring at ways in which we can **4) float objects** in mid-air using **6) ultrasound**.

And it was always a **2) blue-sky idea** until about a year ago when some of my co-founders were saying, oh, maybe there's a **3) commercial opportunity** for this.

1) acoustic holography	2) a range of tiny speakers	3) computationally	4) generate	5) perfected	6) time intervals
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AcoustoFab has **5) perfected** the ability to pick up a droplet or a small particle, adjust it mid-air, then move it to a specific location doing all of this with only using sound waves.

The new technology uses **2) a range of tiny speakers** set at 40khz to **4) generate** the sound waves, outside of the audible range for humans.

The magic trick is we time the turning on and off of each individual speaker precisely. So when we turn them on and off at different **6) time intervals**, they create a pattern and we can **3) computationally** using **1) Acoustic holography**, shape the sound field in the far field however you want.

1) academic use	2) demonstrating	3) held in place	4) research labs	5) transducers	6) wavelength
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So for example, we can make them all come together to a point and they can we can make **5) transducers** from the bottom and from the top come to two different points that are half a **6) wavelength** apart. Then if you put an object there, it's going to be **3) held in place**.

AcoustoFab has been 2) demonstrating their sound levitation kit at tech fairs around the world. They say 4) research labs can buy a basic kit for 1) academic use, starting at \$3,100.