



News Front Page



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- Americas
- Asia-Pacific
- Europe
- Middle East
- South Asia
- UK
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- Health
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- Technology**
- Entertainment
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- Special Reports

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## Anti-wi-fi paint offers security

**DIGITAL PLANET**  
By Dave Lee  
BBC World Service

**Researchers say they have created a special kind of paint which can block out wireless signals.**

It means security-conscious wireless users could block their neighbours from being able to access their home network - without having to set up encryption.

The paint contains an aluminium-iron oxide which resonates at the same frequency as wi-fi - or other radio waves - meaning the airborne data is absorbed and blocked.

By coating an entire room, signals can't get in and, crucially, can't get out.

Developed at the University of Tokyo, the paint could cost as little as £10 per kilogram, researchers say.

### Cost-effective security

The makers say that for businesses it's a quick and cheap way of preventing access to sensitive data from unauthorised users. Presently, most companies have to invest in complicated encryption software to deter hackers.

Speaking on the BBC World Service's Digital Planet programme, Shin-ichi Ohkoshi, who is leading the project, explained how the paint could have many uses beyond security.

"In a medical setting, you could transmit large volumes of data from a medical device, such as an endoscope, to a computer.

"By painting a solution containing our magnetic particles on the walls, you would quickly, and effectively, shield the room from stray electromagnetic radiation from outside."



With a quick lick of paint, your wi-fi connection could be secured

**“ You could block phone signals from outside and stop people's phones ringing during the movie. ”**  
Shin-ichi Ohkoshi, University of Tokyo

While paints blocking lower frequencies have been available for some time, Mr Ohkoshi's technology is the first to absorb frequencies transmitting at 100GHz (gigahertz). Signals carrying a larger amount of data - such as wireless internet - travel at a higher frequency than, for example, FM radio.

"I'm working on a material that can absorb a larger range of frequencies. We are capable of making a paint that can absorb over 200 gigahertz."

He hopes that soon the technology could be woven into clothing.

"We're not sure about the true effects of electromagnetic waves, in this range, on the human body.

"We're assuming that excessive exposure could be bad for us. Therefore we're trying to make protective clothes for young children or pregnant women to help protect their bodies from such waves."

### At the movies

The paint could also provide some much-needed relief during nights out at the cinema.

"Our current mobile phones work at much lower frequencies, around 1.5 gigahertz. But, our material can also absorb frequencies that low, so

### DIGITAL PLANET

\* Digital Planet is the weekly technology programme broadcast from the BBC World Service

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you could block phone signals from outside and stop people's phones ringing during the movie," he said.

As well as helping to keep the cinema quiet, the paint may also pave the way for higher quality screens.

"Movie pictures are beamed on the screen by the projector at the back of the cinema. But in the future, you could use a data link that works with millimetre waves.

"You would have problems with interference, unless you painted the wall and ceiling of the theatre with an absorbent material like ours.

"In fact, we've had an order from an American company keen to use our ink in its movie theatre - we've just sent them a sample."

#### 'Nothing new'

Some security experts remain unconvinced by the paint.

"The use of electromagnetic shielding techniques are nothing new," said Mark Jackson, security engineer at Cisco UK. "They have been utilised by highly sensitive environments for many years."

Mr Jackson notes that while the paint may block eavesdroppers, it would not prevent other types of hackers or intruders.

"Paint that blocks RF based Wi-Fi transmissions does not in any way remove the need to ensure a robust security model is deployed," he added.

"Surely the thought of having to redecorate a building in order to provide Wi-Fi security is more costly & complex than security functionality available in even the cheapest of Wi-Fi access points?" he said.

- \* It is broadcast on Tuesday at 1232GMT and repeated at 1632GMT, 2032GMT and on Wednesday at 0032GMT

- \* It is also available as a [podcast](#)

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