

Key factors for wireless power transfer

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What happens to a resonant wireless power transfer system in the presence of complex electromagnetic environments, such as metal plates? A team of researchers explored the influences at play in this type of situation, and they describe in the American Institute of Physics' journal *AIP Advances* how efficient wireless power transfer can indeed be achieved in the presence of metal plates.

The team discovered that [resonance frequency](#) matching, alignment of the magnetic field, and impedance matching are the most important factors for efficient wireless power transfer. These findings are highly significant, they say, because one futuristic application of wireless power transfer would be to harness and use it via [magnetic resonance](#) to charge electric vehicles.

Corresponding coils attached to the bottom of an electric vehicle would pick up energy as the vehicle passes over the coils embedded in the highway. With this type of dynamic charging, an electric vehicle's driving range could become unlimited and the size of its batteries would be greatly reduced.

Wireless power transfer technology may find use in a wide range of applications beyond powering electric vehicles, said Xiaofang Yu, an electrical engineer and postdoctoral fellow at Stanford University who led the research.

Other applications may include charging mobile devices, [home appliances](#), or even medical devices implanted in the human body.

More information: The article "Wireless power transfer in the presence of metallic plates: Experimental Results" by Xiaofang Yu, Torbjorn Skauli, Bjorn Skauli, Sunil Sandhu, Peter B. Catrysse, and Shanhui Fan appears in the journal *AIP Advances*.

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