INNOVACION

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La energía fue enviada desde su fuente hasta una lamparita situada a dos metros. La conexión se logró a través de un campo magnético creado entre dos antenas de cobre. Los expertos ahora trabajan para aumentar la distancia posible de transmisión.

Investigadores del Instituto Tecnológico de Massachusetts (MIT, por su sigla en inglés) lograron transmitir electricidad de forma inalámbrica. La energía fue enviada desde su fuente hasta una lamparita situada a dos metros de distancia.
La tecnología, a la que llaman "WiTricity" (combinación de las palabras "inalámbrico" y "electricidad" en inglés), trabaja creando un campo magnético entre dos antenas de cobre, una conectada a la fuente de electricidad y otra al dispositivo al que se quiere brindar energía.
Los científicos aseguran que el sistema, que funciona mediante un fenómeno físico llamado resonancia, no representa ningún riesgo significativo para la salud. El MIT continúa trabajando para conseguir ampliar la distancia posible de transmisión.

MIT's 'WiTricity' Makes Power Cords Obsolete

By Barry Levine
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The MIT researchers who developed the "WiTricity" wireless power technology haven't set their sights on global broadcast power just yet, but the team is already envisioning wirelessly transmitting power to laptops or cell phones across an office or inside a house. Because the power stream can be consistent, the devices would not even need batteries.
Along with LPs, audio tape, and dial-up modems, children of the future might wonder what a "power cord" was. A team of researchers from MIT has demonstrated such a future, when they were recently able to light a 60-watt light bulb from an unconnected source about seven feet away.
Dubbed "WiTricity," as in "wireless electricity," the research has been published in the June 7 issue of Science Express, an online publication of the esteemed journal, Science.

Team leader Professor Marin Soljacic describes the "eureka" moment as one he experienced in his pajamas a few years ago. He was looking at his cell phone on the kitchen counter. "It was probably the sixth time that month that I was awakened by my cell phone beeping to let me know that I had forgotten to charge it," he said in a statement. "It occurred to me that it would be so great if the thing took care of its own charging."

Transmitting Wireless Power

That sparked him, so to speak, to think about what kind of processes could transmit power wirelessly. Electromagnetic radiation spreads in all directions, which is great to disseminate radio waves but not great for directing power transmission. A directed

stream, such as one carried by lasers, requires line of sight and would be very tricky for following a moving target.

Instead, Soljacic and his team chose "coupled resonance." Two objects that have the same resonant frequency can transmit energy with efficiency, and reject interaction with nonresonant objects. The opera singer who sings exactly the right note, loud enough, can break a wine glass if it is precisely tuned to her resonant frequency by the level of the wine in the glass. Any other wine glasses just ignore her.

While such acoustical resonance wasn't exactly the answer, the MIT team focused on magnetically coupled resonators. Two electromagnetic resonators can be coupled through their magnetic fields, even over a distance several times larger than the objects themselves. Plus, ordinary materials and living organisms respond only very weakly to magnetic fields.

No Global Plans Just Yet

Two copper coils, each a self-resonant system, become the resonant couple. One is attached to a power source and acts as the transmitter. It emits a nonradiative magnetic field that is oscillating in the MHz range. The other coil resonates with this field, and receives the transmission. MIT physics undergraduate Robert Moffatt noted that this arrangement means that "most of the power not picked up by the receiving coil remains bound to the vicinity of the sending unit, instead of being radiated into the environment and lost."
It might sound like magnetic induction, which is used in transformers to transmit power between two, very close but nontouching coils, but the researchers note that such nonresonant magnetic induction drops off very quickly as the coils are moved apart, and are about a "million times less efficient" than resonant magnetic coupling.

The researchers haven't set their sights on transmitting worldwide, yet. Instead, they envision wirelessly transmitting power to a laptop, or to Soljacic's cell phone, across an office or inside a house. Because the power stream can be consistent, the device would not even need a battery.

Still Wired for Now

Samir Bhavnani, research director at Current Analysis, called the MIT team's work "awesome."

"I love the idea of getting rid of the remaining wires, which are mostly power cords, within a business or home," he said. He also noted that, if implemented, this research could mean not having to deal with battery life for office- or home-bound devices.

But, Bhavnani cautioned, this is only the first step, and it could be years before we see such technology on the market.