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New 'Illusion Coating' Adaptive Camouflage/Cloaking Tech Makes its Debut

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Business Standard recently published a piece on the latest development in adaptive-camouflage/cloaking technology. Dubbed "illusion coating" by its developers Douglas H Werner and Zhi Hao Jiang out of Pennsylvania State University, the technology, comprised of an "ultra-thin layer of dielectric with copper patterning designed for the wavelength they wish to cloak", seems to be particularly useful for radio wave cloaking, i.e, the cloaking of antennae arrays. The key section in the whole piece is the following:

Another application of this material would be to protect objects from other emitting objects nearby while still allowing electromagnetic communication between them.

This was not possible with the conventional transformation optics-based cloaking method because the cloaking mechanism electromagnetically blocked the cloaked object from the outside, but this new coating allows the object surrounded to continue working while being protected.

That's important, since the above-described "meta-surface coating" (with geometric copper patterns running over a flexible substrate material) can theoretically camouflage military radio communications systems from enemy detection and targeting while transmitting, which can keep those at the transmitting location from getting killed, and the equipment from getting destroyed.

Of course, the jury's still out on whether or not Werner and Jiang's tech actually works, or is vaporware designed to bring in U.S. government funding. DefenseReview (DR) is cautiously optimistic that aforementioned Werner and Jiang aren't claiming a capability they can't actually back up, 'cause, uhm, if they were, they'd both deserve a stern talking to.

Oh, one more section caught our attention:

Each illusion coating must be designed for the specific application, but the designs are optimised mathematically. This method of manufacture is low cost and well established.

Basically, the "Illusion Coating" can be printed lithographically, just like printed circuit boards, but each one's going to be custom to fit the specific item its cloaking.

Defense Review's been following various adaptive camouflage/cloaking technologies for years, and we're always happy to report on a new one.

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