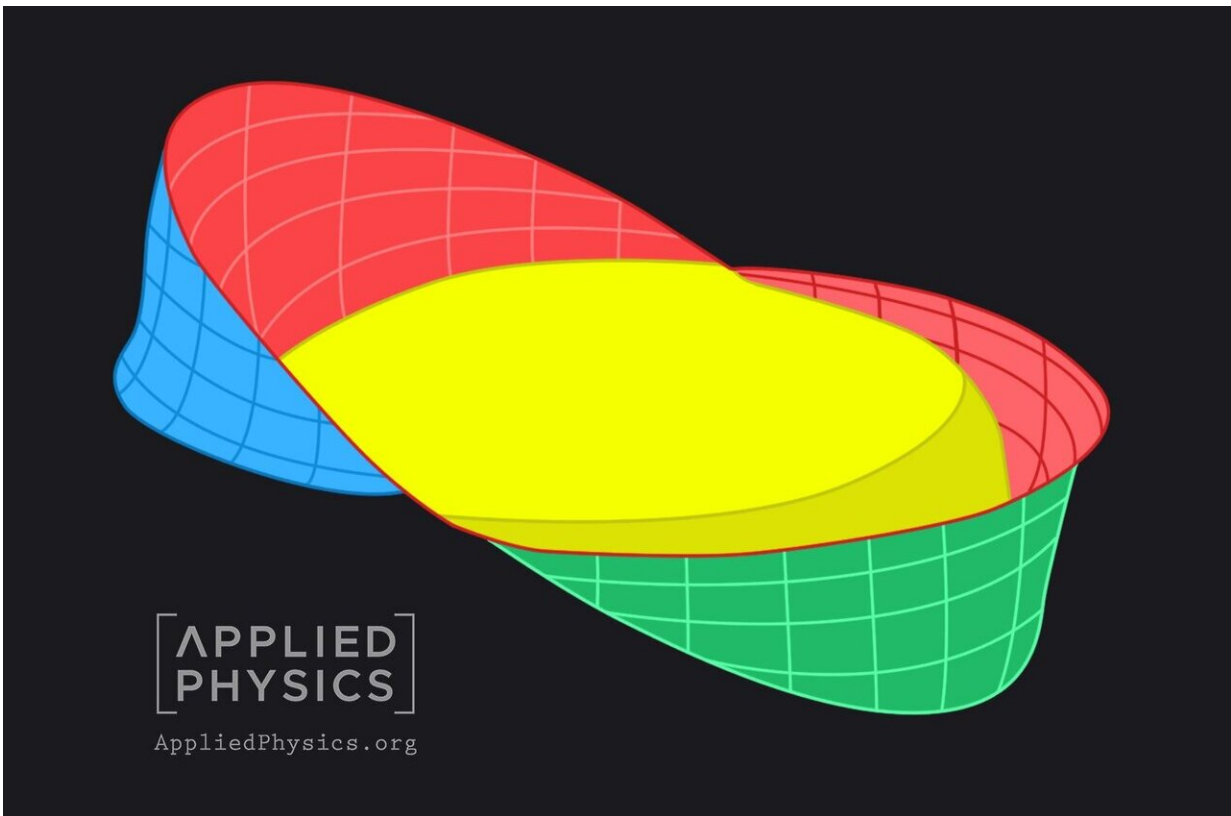


A potential model for a real physical warp drive

March 4 2021, by Bob Yirka



Credit: Gianni Martire (Applied Physics)

A pair of researchers at Applied Physics has created what they describe as the first general model for a warp drive, a model for a space craft that could travel faster than the speed of light, without actually breaking the

laws of physics. Alexey Bobrick, and Gianni Martire have written a paper describing their ideas for a warp drive and have published it in IOP's *Classical and Quantum Gravity*.

Back in the '60s, television viewers became familiar with the idea of a [warp drive](#) courtesy of the television show "Star Trek." When the crew needed to get somewhere fast, Captain Kirk gave his famous command ("Mr. Sulu, execute"), and the ship was pushed swiftly to another distant destination. Physicists have scoffed at the idea of a real warp drive, however, because it suggests travel faster than light. But in actuality, as the name of the drive suggests, such an engine did not actually push the craft faster than the speed of light; instead, it simply warped space time in a way that allowed for using a shortcut. Imagine a napkin. If you had to traverse its entire surface, it would take a certain amount of time. But what if you folded the napkin in half and moved through and across the folds? You could get to your destination in almost no time. In this new effort, the researchers have taken a previous idea based on warping [space-time](#) a step further to create a model for a warp drive that they believe could be feasible in the future.

Bobrick and Martire start with the idea of an Alcubierre warp drive, a concept developed by Miguel Alcubierre in 1994—he envisioned it as spacecraft that could contract space time in front of the vehicle while expanding it behind the craft. But such a craft would require a massive amount of negative energy, which would not be feasible for a real spacecraft. Bobrick and Martire suggest instead that a massive gravitational force could be used to bend [space time](#). The trick is finding a way to compress a planet-sized mass to a manageable spacecraft-module size in order to use its gravity. Because of the implied difficulties, a warp drive created from the model developed by the researchers could not be built today, but it does suggest that someday it might be possible.

More information: Alexey Bobrick et al. Introducing physical warp drives, *Classical and Quantum Gravity* (2021). [DOI: 10.1088/1361-6382/abdf6e](https://doi.org/10.1088/1361-6382/abdf6e)

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