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A new proposal for covariant warp drive

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Thirty years after Alcubierre introduced the concept of the warp drive spacetime in General Relativity (GR), extensive literature has emerged on his model and its generalizations. However, these models, which we refer to as “restricted warp drive” models, are limited within the context of GR. In contrast, we propose a new approach called the “tilted warp drive,” which incorporates essential elements missing from previous models, such as covariant descriptions of motion, including tilted, accelerated, and vortical motions.

In this talk, I will discuss the major significance of the tilt in advancing towards a feasible physical warp drive model. I will present the key concepts and an example demonstrating the potential of this new proposal, which opens a new avenue of research. This approach, not previously explored in the literature, may lead the way towards a deeper understanding of a physical warp drive. If time permits, I will also link these spacetimes to cosmological models.
This is joint work with Thomas Buchert.

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