



Advanced Space Propulsion Based on Vacuum (Spacetime Metric) Engineering

[Harold E. Puthoff](#)

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A theme that has come to the fore in advanced planning for long-range space exploration is the concept that empty space itself (the quantum vacuum, or spacetime metric) might be engineered so as to provide energy/thrust for future space vehicles. Although far-reaching, such a proposal is solidly grounded in modern physical theory, and therefore the possibility that matter/vacuum interactions might be engineered for space-flight applications is not a priori ruled out. As examples, the current development of theoretical physics addresses such topics as warp drives, traversable wormholes and time machines that provide for such vacuum engineering possibilities. We provide here from a broad perspective the physics and correlates/consequences of the engineering of the spacetime metric.

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