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Quantum Tunneling and Complex Trajectories MAX MEYNIG, HAL HAGGARD, Bard College — In general, the semiclassical approximation of quantum mechanical tunneling fails to treat tunneling through barriers if real initial conditions and trajectories are used. By analytically continuing classical dynamics to the complex plane the problems encountered in the approximation can be resolved. While, the complex methods discussed here have been previously explored, no one has exhibited an analytically solvable case. The essential features of the complex method will be discussed in the context of a novel, analytically solvable problem. These methods could be useful in quantum gravity, with applications to the tunneling of spacetime geometries.

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