

Abstract Submitted  
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**Demonstration of entanglement assisted invariance on IBM's Quantum Experience** SEBASTIAN DEFFNER, Univ of Maryland-Balt County — Quantum entanglement is among the most fundamental, yet from classical intuition also most surprising properties of the fully quantum nature of physical reality. We report several experiments performed on IBM's Quantum Experience demonstrating envariance – entanglement assisted invariance. Envariance is a recently discovered symmetry of composite quantum systems, which is at the foundational origin of physics and a purely quantum phenomenon. These very easily reproducible and freely accessible experiments on Quantum Experience provide simple tools to study the properties of envariance, and we illustrate this for several cases with “quantum universes” consisting of up to five qubits.

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