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(G) (POS-78) Quantum Formulation of Classical Mechanics

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We present a general map from Poisson brackets to commutators, motivated by the Koopman-von Neumann formulation of classical mechanics. This map translates the entire apparatus of (Poisson bracket) classical mechanics to a quantum-like language, either in Hilbert space (operators and wavefunctions) or in phase space (star-products and Wigner functions). The setup can be interpreted as a quantum mechanical system with double the degrees of freedom where the extra variables are restricted to appear only linearly in the theory.

Keyword-1

Classical Mechanics

Keyword-2

Quantum-Classical Interface

Keyword-3

Koopman-von Neumann

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