INFORMATION-THEORETIC MEASURES OF SOME QUANTUM SYSTEMS

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Abstract

The distribution of a probability density function all over its domain of definition may be best measured by means of information-theoretic notions of both global (Shannon entropy) and local (Fisher information) characters. These quantities will be here computed for several classical and quantum systems directly from its wave equation. In this communication we shall make emphasis on the following single particle systems: atoms in a spherically symmetric potential, circular membrane and atoms in an external electric field. The extension to multidimensional systems will be also discussed. All these problems require an extensive use of the theory of special functions and orthogonal polynomials.

References:

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