Fisher Metric for Diagonalizable Quadratic Hamiltonians and Application to Phase Transitions

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ABSTRACT

Fisher metric for diagonalizable quadratic Hamiltonians and application to phase transitions Abstract: e derive the extended renormalized entanglement entropy (EREE) and the Fisher information metric in the case of quantum models, described by time-independent diagonal quadratic Hamiltonians. Our research is conducted within the framework of Thermo Field Dynamics (TFD). The result is supported with particular examples from condensed matter physics and string theory. We also use the scalar curvature of the Fisher metric to analyse the phase structure of the corresponding quantum systems.