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Title:	Prior probabilities and thermal characteristics of heat engines
Authors:	Aneja, Preeti (/jspui/browse?type=author&value=Aneja%2C+Preeti) Johal, R.S. (/jspui/browse?type=author&value=Johal%2C+R.S.)
Keywords:	Otto cycle Quantum heat engines
Issue Date:	2012
Publisher:	Versita Warsaw and Springer-Verlag Wien
Citation:	Central European Journal of Physics, 10 (3), pp. 708-714.
Abstract:	The thermal characteristics of a heat cycle are studied from a Bayesian approach. In this approach, we assign a certain prior probability distribution to an uncertain parameter of the system. Based on that prior, we study the expected behaviour of the system and it has been found that even in the absence of complete information, we obtain thermodynamic-like behaviour of the system. Two models of heat cycles, the quantum Otto cycle and the classical Otto cycle are studied from this perspective. Various expressions for thermal efficiencies can be obtained with a generalised prior of the form $\Pi(x) \propto 1/x^b$. The predicted thermodynamic behaviour suggests a connection between prior information about the system and thermodynamic features of the system.
URI:	http://link.springer.com/article/10.2478%2Fs11534-012-0042-y?LI=true#page-1 (http://link.springer.com/article/10.2478%2Fs11534-012-0042-y?LI=true#page-1)
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