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THERMAL SCIENCE

International Scientific Journal

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ON THE APPLICABILITY OF THE EQUIPARTITION THEOREM

ABSTRACT

Generalization of the equipartition theorem is presented for a broad range of potentials $U(x)$ with quadratic minimum. It is shown, that the equipartition of energy in its standard form appears at the low temperatures limit. For potentials demonstrating the quadratic behavior for large displacements from the equilibrium the equipartition holds also in the high temperature limit. The temperature range of applicability of the equipartition theorem for the potential $U = ax^2 + bx^4$ was established.

KEYWORDS

[equipartition of energy](#), [saddle point method](#), [quadratic potential](#)

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