



# On Clausius' approach to entropy and analogies in non-equilibrium

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**Abstract.** In his ninth memoir Clausius summarizes the two principles of thermodynamics as follows

*The whole mechanical theory of heat rests on two fundamental theorems, - that of equivalence of heat and work, and that of equivalence of transformations.*

This paper contains an introduction to Clausius' approach to entropy as illustrated in his original articles and describes an analogy in the macroscopic fluctuation theory of non-equilibrium diffusive systems.

**Keywords.** Entropy, irreversible thermodynamics, equivalent transformations.