

A History of Entropy through Various Methods: Specially Focused on Technical Term Analysis

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Abstract

Rudolf Clausius's 16 papers on the mechanical theory of heat have been studied through four various methods, i.e. traditional text analysis with the help of Clausius's own manuscripts, mathematical equation analysis, experimental data table analysis, and technical term analysis. The first three analyses were briefly summarized while the result of the last technical analysis was explained with such important terms in thermodynamics as Disgregation (Degree of dispersion) and Uncompensirte Verwandlung (Non compensated transformation). These terms played important roles through indicating the micro nature and irreversible character, respectively before the appearance of the term Entropie (entropy) in Clausius's famous paper of 1865. The result of technical term analysis for his paper on the theory of electricity (1853) by the use of a text mining method is also shown with tables and figures.

Key words: R. Clausius, Entropy, mechanical theory of heat, irreversible (non reversible), text mining

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² J. Fourier, *Theorie de la chaleur* (Paris. 1822) in *Oeuvres de Fourier*, part 1 (Paris, 1887): 1–563.