

Abstract Submitted
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The emergence of dimensional analysis in the 19th c SYBIL DE CLARK, University of Arizona — Dimensional analysis was developed in the 19th c. It can be viewed as a reformulation of the principle of homogeneity following the emergence of numerical equations, implying a redefinition of the concept of dimension. The principle of homogeneity holds that some operations can only be performed on quantities of a similar nature, where dimensions define the latter. Instead, Fourier substituted rules which ensure that equations remain invariant under a change of units, and identified dimensions with the power to which conversion factors of derived units must be raised when a fundamental unit is changed. To what extent this new definition of “dimension” concurs with the former is not obvious, and tension between the two conceptions motivated much of the debates regarding dimensional analysis throughout the 19th c.

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