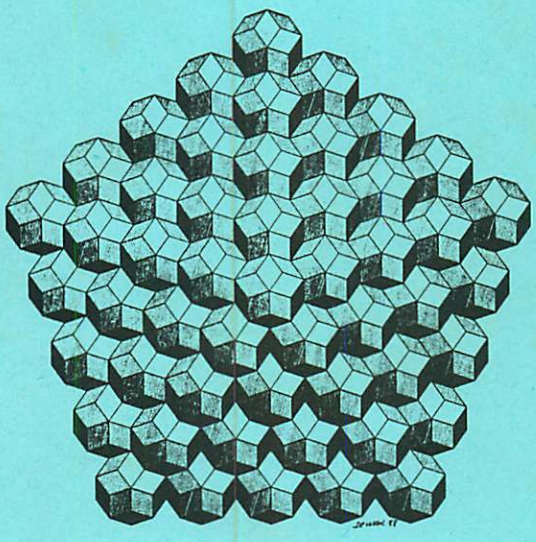
Symmetry of STRUCTURE

an interdisciplinary Symposium

Abstracts

I.



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SYMMETRY PRINCIPLES
IN
NONLINEAR CIRCUITS

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Various forms of symmetry can be identified in a large class of nonlinear circuits. This paper will present an in-depth analysis of the more subtle forms of symmetry principles and their circuit-theoretic implications. The properties of reciprocity and anti-reciprocity and their implications in terms of various stationary and variational principles in nonlinear circuits will be analysed. In particular, decomposition of an arbitrary vector field in terms of a reciprocal and solenoidal n-port will be presented. Finally, the symmetry principles will be used to relate nonlinear conservative circuits to Newtonian mechanics and thermodynamics.