This book introduces a set of methods and techniques for studying mathematical theories and relating them to each other through the use of Grothendieck toposes.

The theory of classifying toposes — which geometrically embodies the mathematical content of first-order (geometric) theories — is first recalled, allowing the formulation of general 'bridge' principles: study theories through the computation of invariants of their associated toposes in terms of different presentations of these toposes. As any Grothendieck topos has infinitely many presentations, the expression of its invariants in terms of them gives rise to a veritable mathematical morphogenesis.

These methods, which are susceptible to unify notions and results across distinct mathematical areas, are applied in particular to the study of geometric theories and their extensions through suitable topos-theoretic invariants.

The book concludes with a selection of applications of the theoretical results obtained in the previous parts to very different concrete mathematical theories.

ISBN 978-0-19-875891-4

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