

1. Record Nr.	UNINA9910299779903321
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Titolo	Theory of Transformation Groups I : General Properties of Continuous Transformation Groups. A Contemporary Approach and Translation // by Sophus Lie ; edited by Joël Merker
Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2015
ISBN	3-662-46211-7
Edizione	[1st ed. 2015.]
Descrizione fisica	1 online resource (640 p.)
Disciplina	512.55 512.482
Soggetti	Topological groups Lie groups Geometry, Projective Mathematics History Topological Groups, Lie Groups Projective Geometry History of Mathematical Sciences
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Part I Modern Presentation -- 1 Three Principles of Thought Governing the Theory of Lie -- 2 Local Transformation Equations and Essential Parameters -- 3 Fundamental Differential Equations for Finite Continuous Transformation Groups -- 4 One-Term Groups and Ordinary Differential.- Part II English Translation -- 5 Complete Systems of Partial Differential Equations -- 7 Determination of All Systems of Equations Which Admit Given Infinitesimal Transformations -- 8 Complete Systems Which Admit All Transformations of a One-term Group -- 9 Characteristic Relationships Between the Infinitesimal Transformations of a Group -- 10 Systems of Partial Differential Equations the General Solution of Which Depends Only Upon a Finite Number of Arbitrary Constants -- 11 The Defining Equations for the Infinitesimal Transformations of a Group -- 12 Determination of All

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Determination of All Systems of Equations Which Admit a Given r-term Group -- 15 Invariant Families of Infinitesimal Transformations -- 16  
The Adjoint Group -- 17 Composition and Isomorphism -- 18 Finite Groups, the Transformations of Which Form Discrete Continuous Families -- 19 Theory of the Similarity [AEHNLICHKEIT] of r-term Groups -- 20 Groups, the Transformations of Which Are Interchangeable With All Transformations of a Given Group -- 21 The Group of Parameters -- 22 The Determination of All r-term Groups -- 23 Invariant Families of Manifolds. - 24 Systatic and Asystatic Transformation Groups -- 25 Differential Invariants -- 26 The General Projective Group -- 27 Linear Homogeneous Groups -- 28 Approach [ANSATZ] towards the Determination of All Finite Continuous Groups of the n-times Extended Space -- 29 Characteristic Properties of the Groups Which are Equivalent to Certain Projective Groups -- Glossary of significantly used words -- Index./p>.

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### Sommario/riassunto

This modern translation of Sophus Lie's and Friedrich Engel's "Theorie der Transformationsgruppen Band I" will allow readers to discover the striking conceptual clarity and remarkably systematic organizational thought of the original German text. Volume I presents a comprehensive introduction to the theory and is mainly directed towards the generalization of ideas drawn from the study of examples. The major part of the present volume offers an extremely clear translation of the lucid original. The first four chapters provide not only a translation, but also a contemporary approach, which will help present day readers to familiarize themselves with the concepts at the heart of the subject. The editor's main objective was to encourage a renewed interest in the detailed classification of Lie algebras in dimensions 1, 2 and 3, and to offer access to Sophus Lie's monumental Galois theory of continuous transformation groups, established at the end of the 19th Century. Lie groups are widespread in mathematics, playing a role in representation theory, algebraic geometry, Galois theory, the theory of partial differential equations, and also in physics, for example in general relativity. This volume is of interest to researchers in Lie theory and exterior differential systems and also to historians of mathematics. The prerequisites are a basic knowledge of differential calculus, ordinary differential equations and differential geometry.

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