Record Nr. UNINA9911007361303321 Autore Rowe David E Titolo Felix Klein: The Erlangen Program / / by David E. Rowe Cham:,: Springer Nature Switzerland:,: Imprint: Birkhäuser,, 2025 Pubbl/distr/stampa **ISBN** 3-031-85474-8 Edizione [1st ed. 2025.] Descrizione fisica 1 online resource (0 pages) Classic Texts in the Sciences, , 2365-9971 Collana 510.9 Disciplina Soggetti Mathematics History Geometry Topological groups Lie groups History of Mathematical Sciences Topological Groups and Lie Groups Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Nota di contenuto Preface -- Introduction -- Part I. Prehistory of the "Erlangen Program" -- 1 Klein as a Young Geometer -- 2. Klein Encounters Sophus Lie -- 3. Klein on Cayley's Projective Metric -- Part II. Klein's "Erlangen Program" with Commentary -- 4. Klein's "Erlangen Program" -- 5. Textual Analysis of Klein's "Erlangen Program" -- Part III. Four Phases of Reception and Transformation -- 6. First Phase of Reception, 1873-1889 -- 7. Second Phase of Reception, 1890–1899 -- 8. Third Phase of Reception, 1900–1916 -- 9. Fourth Phase of Reception, 1917–1930 --Part IV. Reconsiderations -- 10 Historical Reflections -- Bibliography --Name Index. Sommario/riassunto This book presents a historical account of Felix Klein's "Comparative Reflections on Recent Research in Geometry" (1872), better known as his "Erlangen Program." Originally conceived and written when Klein was collaborating with Sophus Lie, this bold essay initially made little impression on contemporary researchers. Decades later, however, it eventually became a famous classic. Eminent mathematicians hailed Klein's main message – the role of invariants of transformation groups

in geometry – as presaging major developments in mathematics and

physics. The first part of this book focuses on the prehistory surrounding Klein's "Erlangen Program," stressing the motivations that led Klein to write it. The core of the book (Part II) then presents a new translation of Klein's original text, followed by detailed textual analysis aimed at guiding the reader through its rather terse and opaque prose. Part III deals with its complicated reception history, treated in four periods spanning the years from 1872 to 1930. This culminated during Klein's lifetime with his efforts to promote the "Erlangen Program" as a framework for interpreting Einstein's theory of relativity. After his death in 1925, the viability of this framework became a contentious issue among leading differential geometers. Part IV looks back on the transformations in mathematics that led to a modernized interpretation of Klein's message. The book also explores in depth how the growing fame of the "Erlangen Program" undermined Klein's friendship with Sophus Lie, leading to a dramatic public break between them in 1893. Beyond the "Erlangen Program" itself, this book deals with many of Felix Klein's other works. As an introduction to a largely forgotten world of ideas, this study will appeal not only to experts but also to graduate students and all those with a serious interest in the history of modern mathematics. .