

1. Record Nr.	UNINA9910777458603321
Titolo	The mathematics of Minkowski space-time [[electronic resource]] : with an introduction to commutative hypercomplex numbers // Francesco Catoni ... [et al.]
Pubbl/distr/stampa	Basel ; ; Boston, : Birkhauser, c2008
ISBN	1-281-49123-3 9786611491239 3-7643-8614-2
Edizione	[1st ed. 2008.]
Descrizione fisica	1 online resource (271 p.)
Collana	Frontiers in mathematics
Altri autori (Persone)	CatoniFrancesco
Disciplina	516.374
Soggetti	Generalized spaces Special relativity (Physics)
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	N-Dimensional Commutative Hypercomplex Numbers -- The Geometries Generated by Hypercomplex Numbers -- Trigonometry in the Minkowski Plane -- Uniform and Accelerated Motions in the Minkowski Space-Time (Twin Paradox) -- General Two-Dimensional Hypercomplex Numbers -- Functions of a Hyperbolic Variable -- Hyperbolic Variables on Lorentz Surfaces -- Constant Curvature Lorentz Surfaces -- Generalization of Two-Dimensional Special Relativity (Hyperbolic Transformations and the Equivalence Principle).
Sommario/riassunto	Hyperbolic numbers are proposed for a rigorous geometric formalization of the space-time symmetry of two-dimensional Special Relativity. The system of hyperbolic numbers as a simple extension of the field of complex numbers is extensively studied in the book. In particular, an exhaustive solution of the "twin paradox" is given, followed by a detailed exposition of space-time geometry and trigonometry. Finally, an appendix on general properties of commutative hypercomplex systems with four unities is presented.