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Collana	Lecture notes in mathematics, , 0075-8434 ; ; 1975
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Soggetti	Calabi-Yau manifolds Multiplication, Complex
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Note generali	Revision of work originally presented as the author's thesis (doctoral)--University of Duisburg-Essen, 2007.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	An Introduction to Hodge Structures and Shimura Varieties -- Cyclic Covers of the Projective Line -- Some Preliminaries for Families of Cyclic Covers -- The Galois Group Decomposition of the Hodge Structure -- The Computation of the Hodge Group -- Examples of Families with Dense Sets of Complex Multiplication Fibers -- The Construction of Calabi-Yau Manifolds with Complex Multiplication -- The Degree 3 Case -- Other Examples and Variations -- Examples of Families of 3-manifolds and their Invariants -- Maximal Families of CMCY Type.
Sommario/riassunto	The main goal of this book is the construction of families of Calabi-Yau 3-manifolds with dense sets of complex multiplication fibers. The new families are determined by combining and generalizing two methods. Firstly, the method of E. Viehweg and K. Zuo, who have constructed a deformation of the Fermat quintic with a dense set of CM fibers by a tower of cyclic coverings. Using this method, new families of K3 surfaces with dense sets of CM fibers and involutions are obtained. Secondly, the construction method of the Borcea-Voisin mirror family,

which in the case of the author's examples yields families of Calabi-Yau 3-manifolds with dense sets of CM fibers, is also utilized. Moreover fibers with complex multiplication of these new families are also determined. This book was written for young mathematicians, physicists and also for experts who are interested in complex multiplication and varieties with complex multiplication. The reader is introduced to generic Mumford-Tate groups and Shimura data, which are among the main tools used here. The generic Mumford-Tate groups of families of cyclic covers of the projective line are computed for a broad range of examples.