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Soggetti	Mechanics, Applied Continuum mechanics Numerical analysis Computer simulation Computer science - Mathematics Engineering Mechanics Continuum Mechanics Numerical Analysis Computer Modelling Symbolic and Algebraic Manipulation
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Nota di contenuto	Introduction -- Maxima - A Computer Algebra System -- Plane Elements.-Classical Plate Elements -- Shear Deformable Plate Elements. -Graphical User Interface -- Source Codes.
Sommario/riassunto	This book is intended as a study aid for the finite element method. Based on the free computer algebra system Maxima, we offer routines to symbolically or numerically solve problems from the context of two-dimensional problems. For this rather advanced topic, classical 'hand calculations' are difficult to perform and the incorporation of a computer algebra system is a convenient approach to handle, for example, larger matrix operations. The mechanical theories focus on the classical two-dimensional structural elements, i.e., plane elements,

thin or classical plates, and thick or shear deformable plate elements. The use of a computer algebra system and the incorporated functions, e.g., for matrix operations, allows to focus more on the methodology of the finite element method and not on standard procedures. Furthermore, we offer a graphical user interface (GUI) to facilitate the model definition. Thus, the user may enter the required definitions in a source code manner directly in wxMaxima or use the GUI which is able to execute wxMaxime to perform the calculations.