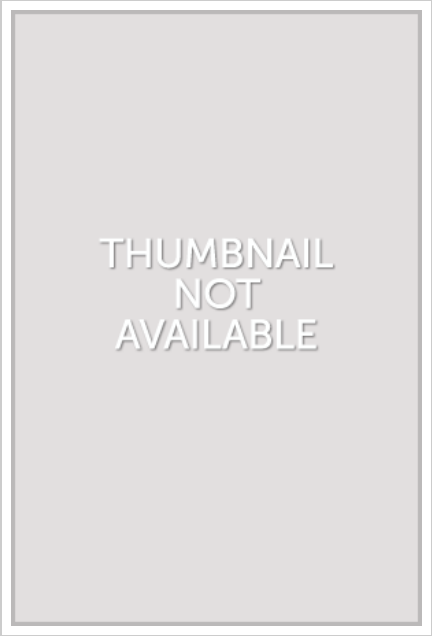


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A Theory of Supercritical Wing Sections, with Computer Programs and Examples

By Felix Bauer

Springer Apr 1972, 1972. Taschenbuch. Book Condition: Neu. 254x178x12 mm. This item is printed on demand - Print on Demand Neuware - At present, there is considerable interest in supercritical wing technology for the development of aircraft designed to fly near the speed of sound. The basic principle is the suppression of boundary layer separation by shifting the shock waves that occur on the wing toward the trailing edge and making them as weak as possible. The purpose of this report is to make available to the engineering public mathematical methods for the design of supercritical wings. These methods depend on the numerical solution of the partial differential equations of two-dimensional gas dynamics. The main contribution is a computer program for the design of shockless transonic airfoils using the hodograph transformation and analytic continuation into the complex domain. Another contribution is a program for the analysis of transonic flow with shocks past an airfoil at off-design conditions. In our design work we include a turbulent boundary layer correction. Part I of the paper is devoted to a description of the mathemati cal theory and need not be studied by those primarily concerned with running the programs. Part II is a...

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