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Nota di contenuto	Front matter -- Preface -- Contents -- Introduction -- 1. Statement of the problem -- 2. Determination of aerodynamic pressure -- 3. Mathematical statement of problems -- 4. Reduction to a problem on a disk -- 5. Test problems -- 6. Rectangular plate -- 7. Flutter of a rectangular plate of variable stiffness or thickness -- 8. Viscoelastic plates -- 9. General formulation -- 10. Determination of aerodynamic pressure -- 11. The shallow shell as part of an airfoil -- 12. The shallow shell of revolution -- 13. The conical shell: external flow -- 14. The conical shell: internal flow -- 15. Example calculations -- 16. Discretization of the Laplace operator -- 17. Discretization of linear equations in mathematical physics with separable variables -- 18. Eigenvalues and eigenfunctions of the Laplace operator -- 19. Eigenvalues and eigenfunctions of a biharmonic operator -- 20. Eigenvalues and eigenfunctions of the Laplace operator on an arbitrary domain -- 21. Eigenvalues and eigenfunctions of a biharmonic operator on an arbitrary domain -- 22. Error estimates for eigenvalue problems -- Conclusion -- Bibliography

## Sommario/riassunto

Back-action of aerodynamics onto structures such as wings cause vibrations and may resonantly couple to them, thus causing instabilities (flutter) and endangering the whole structure. By careful choices of geometry, materials and damping mechanisms, hazardous effects on wind engines, planes, turbines and cars can be avoided. Besides an introduction into the problem of flutter, new formulations of flutter problems are given as well as a treatise of supersonic flutter and of a whole range of mechanical effects. Numerical and analytical methods to study them are developed and applied to the analysis of new classes of flutter problems for plates and shallow shells of arbitrary plane form. Specific problems discussed in the book in the context of numerical simulations are supplemented by Fortran code examples (available on the website).

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