

## Ten lectures on wavelets

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### Abstrak

Wavelets are a mathematical development that may revolutionize the world of information storage and retrieval according to many experts. They are a fairly simple mathematical tool now being applied to the compression of data--such as fingerprints, weather satellite photographs, and medical x-rays--that were previously thought to be impossible to condense without losing crucial details.

This monograph contains 10 lectures presented by Dr. Daubechies as the principal speaker at the 1990 CBMS-NSF Conference on Wavelets and Applications. The author has worked on several aspects of the wavelet transform and has developed a collection of wavelets that are remarkably efficient.

The opening chapter provides an overview of the main problems presented in the book. Following chapters discuss the theoretical and practical aspects of wavelet theory, including wavelet transforms, orthonormal bases of wavelets, and characterization of functional spaces by means of wavelets. The last chapter presents several topics under active research, as multidimensional wavelets, wavelet packet bases, and a construction of wavelets tailored to decompose functions defined in a finite interval. Because of their interdisciplinary origins, wavelets appeal to scientists and engineers of many different backgrounds.