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Sinopsis

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In this book a new approach is presented to exhibit relations between Sobolev spaces, Besov spaces, and Hölder-Zygmund spaces on the one hand and Morrey-Campanato spaces on the other. Morrey-Campanato spaces extend the notion of functions of bounded mean oscillation. These spaces play an important role in the theory of linear and nonlinear PDEs.

Chapters 1-3 deal with local smoothness spaces in Euclidean n -space based on the Morrey-Campanato refinement of the Lebesgue spaces. The presented approach relies on wavelet decompositions. This is applied in Chapter 4 to Gagliardo-Nirenberg inequalities. Chapter 5 deals with linear and nonlinear heat equations in global and local function spaces. The obtained assertions about function spaces and nonlinear heat equations are used in Chapter 6 to study Navier-Stokes equations.

The book is addressed to graduate students and mathematicians with a working knowledge of basic elements of (global) function spaces and an interest in applications to nonlinear PDEs with heat and Navier-Stokes equations as prototypes.

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Readership

Graduate students and researchers interested in applications to nonlinear PDEs with heat and Navier-Stokes equations as prototypes.

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¦Global and local spaces
¦Local spaces: Properties