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homogeneous kernels; 5.3. Spherical HSI and potentials; 6. Portugal period; after 1995; 6.1. FC continued; constant exponents; 6.1.1. Approximative inverses for the fractional type operators; 6.1.2. Local nature of Riesz potential operators; 6.1.3. Miscellaneous; 6.2. Equations with involutive operators, continued; 6.3. Variable Exponent Analysis: 1993-2003

6.4. Variable Exponent Analysis in collaboration with V. Kokilashvili, 2001-present

6.5. Variable Exponent Analysis, continued: 2004-present; 6.5.1. More on weighted estimates of potential operators; 6.5.2. Studies related to HSI and the range $I(\cdot)$ ($L_p(\cdot)$) in case of variable exponents; 6.5.3. Morrey and Campanato spaces; 6.5.4. PDO in variable exponent setting; 6.5.5. Miscellaneous in variable exponent analysis; 7. Miscellaneous; References; The Role of S.G. Samko in the Establishing and Development of the Theory of Fractional Differential Equations and Related Integral Operators

1. Main aspects of the modern theory of fractional differential equations

1.1. Elements of the classification; Ordinary fractional differential equations; Fractional partial differential equations; 1.2. Methods of investigation; Treating problems; Types of solutions; Methods of solution; 2. Basic components of investigations related to fractional differential equations; 2.1. Development of fractional calculus; 2.2. Development of the theory of first-order integral equations; 2.3. Development of methods of integral transforms; 2.4. Development of the theory of special functions

2.5. Development of multidimensional fractional calculus

3. The role of Professor S.G. Samko in the creation and development of the theory of fractional differential equations; 3.1. Singular integral equations and boundary value problems; 3.2. Abel integral equations and their generalizations; 3.3. Integral equations with weak singularities; 3.4. Convolution type integral equations; 3.5. Fractional integro-differentiation; 3.6. Fractional powers of operators; 3.7. The theory of (one- and multidimensional) potential type operators; 4. Conclusion; Acknowledgment; References

Energy Flow Above the Threshold of Tunnel Effect

Sommario/riassunto

This volume is dedicated to Professor Stefan Samko on the occasion of his seventieth birthday. The contributions display the range of his scientific interests in harmonic analysis and operator theory. Particular attention is paid to fractional integrals and derivatives, singular, hypersingular and potential operators in variable exponent spaces, pseudodifferential operators in various modern function and distribution spaces, as well as related applications, to mention but a few. Most of the contributions were originally presented at two conferences in Lisbon and Aveiro, Portugal, in June/July 2011.
