Approximation by Singular Integrals

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This monograph is the first one to deal exclusively with the study of the approximation of singular integrals to the identity-unit operator. The authors study quantitatively the basic approximation properties of the general Picard, Gauss-Weierstrass and Poisson-Cauchy singular integral operators over the real line, which are not positive linear operators. In particular the authors study the rate of convergence of these operators to the unit operator, as well as the related simultaneous approximation and the global smoothness preservation property of these operators. The corresponding general approximation theory of general singular integral operators is presented with many applications to the trigonometric singular integral. For the convenience of the reader, the chapters of this book are written in a self-contained style. This monograph is intended for researchers, graduate students working in many areas of pure and applied mathematics, including mathematical analysis, probability, statistics, ordinary and partial differential equations.

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