

A. N. Tikhonov, A. V. Goncharsky, V. V. Stepanov and A. G. Yagola

Numerical Methods for the Solution of Ill-Posed Problems

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Tikhonov, A.N., Goncharsky, A., Stepanov, V.V., Yagola, A.G.

# Numerical Methods for the Solution of Ill-Posed Problems

Many problems in science, technology and engineering are posed in the form of operator equations of the first kind, with the operator and RHS approximately known. But such problems often turn out to be ill-posed, having no solution, or a non-unique solution, and/or an unstable solution. Non-existence and non-uniqueness can usually be overcome by settling for 'generalised' solutions, leading to the need to develop regularising algorithms. The theory of ill-posed problems has advanced greatly since A. N. Tikhonov laid its foundations, the Russian original of this book (1990) rapidly becoming a classical monograph on the topic. The present edition has been completely updated to consider linear ill-posed problems with or without a priori constraints (non-negativity, monotonicity, convexity, etc.). Besides the theoretical material, the book also contains a FORTRAN program library. Audience: Postgraduate students of physics, mathematics, chemistry, economics, engineering. Engineers and scientists interested in data processing and the theory of ill-posed problems.

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