ICM 1998, Berlin, Aug. 18–27

Abstracts of Short Communications and Posters

Section:

15. Numerical Analysis and Scientific Computing

1991 MS Classification: 35, 47, 65
Leitão, Antonio, Dep. of Mathematics, Federal Univ. of Santa Catarina, Brasil

On a Linear Operator Related to the Solution of Elliptic Cauchy Problems

The algorithm of Maz'ia et al. [Ma] for solving *linear elliptic Cauchy problems* of second order is formulated in [Le] for general elliptic operators with C^∞-coefficients. A new convergence proof for this iterative algorithm using a functional analytical approach is given in [Le], where the iteration is described using powers of an affine operator T.
We discuss here other properties of T_l (the linear part of T) such as positiveness, self adjointness and injectivity. The effectiveness of two regularization schemas based on the spectral decomposition of T_l is also considered.
[Le] A. Leitão, *An Iterative Method for Solving linear and some non linear elliptic Cauchy Problems,* to appear in SIAM J. of [Ma] V. A. Kozlov, V. G. Maz'ya und A. V. Fomin, *An iterative method for solving the Cauchy problem for elliptic equations* Comput. Maths. Phys., Vol. **31**, No. **1** (1991), 45–52.