ICM 1998, Berlin, Aug. 18–27

Abstracts of Short Communications and Posters

Section:

8. Analysis

1991 MS Classification: 45, 46, 60

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Nonlinear Factorization Equations of Integral Operators

Let I be the unit operator and K - the Fredholm-type Integral operator on finite or infinite interval. Consider the factorization

$$I - K = (I - V-)(I - V+)$$

where $V\pm$ are a Volterrian operator to be defined. This problem is equivalent to some Nonlinear Factorization Equation (NFE) with respect to kernels of $V\pm$. By studying the NFE some new Factorization theorems are proved, including a cases of non-invertible operator $I - K$. The results have been applied to homogeneous and including Wiener Hopf Eq., Renewal Eq. etc.