강주호 조영수
Keimyung University

Self-Adjoint Interpolation Problems in ALG$\mathcal{L}$

AM-5

Given operators X and Y acting on a Hilbert space $\mathcal{H}$, an interpolating operator is a bounded operator A such that $AX = Y$. An interpolating operator for n-operators satisfies the equation $AXi = Yi$, for $i = 1, 2, \cdots, n$. In this article, we showed the following : Let $\mathcal{H}$ be a Hilbert space and let $\mathcal{L}$ be a subspace lattice on $\mathcal{H}$. Let X and Y be operators acting on $\mathcal{H}$. Assume that *range*X is dense in $\mathcal{H}$. Then the following statements are equivalent :

(1) There exists an operator A in Alg$\mathcal{L}$ such that $AX = Y$, $A^* = A$ and every E in $\mathcal{L}$ reduces A.

(2) $\sup\left\{ \dfrac{\Sigma_{i=1}^{n} E_i f_i}{\Sigma_{i=1}^{n} E_i X f_i} : n \in \mathrm{N},\ f_i \in \mathcal{H} \text{ and } E_i \in \mathcal{L} \right\} < \infty$

and $=$ for all E in $\mathcal{L}$ and all f, g in $\mathcal{H}$.

문병수
Korea Atomic Energy Research Institute

Graphic Representation of Solutions of Partial Differential Equations Using their Corresponding Fuzzy Systems

AM-6

In this paper, we describe how to approximate the solutions of partial differential equations by bicubic spline functions whose interpolation errors at non-grid points are smaller in general than those by linear interpolations of the original solution at grid points. We show that the bicubic spline function can be represented exactly or approximately by a fuzzy system, and that the resulting fuzzy rule table shows the contours of the solution function. Thus, the fuzzy rule table is identified as a digital image and the contours in the rule table provide approximate contours of the solution of partial differential equations. Several illustrative examples are included.