ABSTRACT

REPRESENTATION OF LINEAR OPERATOR IN FINITE SEQUENCE
SPACE l_2

by

Muhammad Ibrahim Ali

The mapping of vector space especially on norm space is called operator. There are many cases in linear operator from sequence space into sequence space can be represented by an infinite matrices. For example, a matrices $A : l_2 \rightarrow l_2$ where

$$A = \begin{bmatrix} a_{11} & a_{12} & ... \\ a_{21} & a_{22} & ... \\ \vdots & \vdots & \vdots \end{bmatrix} \text{ and } l_2 = \left\{ x = (x_i) \,\middle|\, \left(\sum_{i=1}^{\infty}|x_i|^2\right)^{\frac{1}{2}} < \infty \right\}$$ is a sequence real numbers. Furthermore, it can be constructed an operator A from sequence space l_2 to sequence space l_2 by using a standard basis $\{e_k\}$ and it can be proven that the collection all the operators become Banach space.

Key Words : Operator, finite sequence space.