



PURDUE UNIVERSITY

Department of Mathematics Colloquium

Speaker: Professor Louis deBranges, Purdue University

Title: "Invariant Subspaces"

Date: Tuesday, August 26, 2008

Time: 4:30 P.M.

Place: MATH 175

Abstract

A theorem of Gauss states that a linear transformation of a vector space over the complex numbers into itself admits an invariant subspace other than the least and the greatest subspace if the vector space admits a subspace other than the least and the greatest subspace. The invariant subspace constructed is also an invariant subspace for every linear transformation which commutes with the given transformation. A theorem of Hilbert states that an isometric linear transformation of a Hilbert space over the complex numbers into itself admits a closed invariant subspace other than the least and the greatest subspace if the Hilbert space admits a subspace other than the least and the greatest subspace. The invariant subspace constructed is also an invariant subspace for every contractive linear transformation which commutes with the given isometric transformation. The same conclusion is now obtained for every contractive linear transformation of a Hilbert space into itself.

Refreshments will be served in the Math Library Lounge at 4:00 p.m.