CURRICULUM VITAE

1 NAME: DR. IMAGIRI STANLEY KATHURIMA.

2 PRESENT ADDRESS:

2.1 Work; School of mathematics, College of Biological and Phyisical Sciences, University of Nairobi, P.O Box 30197-00700, Nairobi, Kenya.

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3 ACADEMIC HISTORY:

3.1 Ph.D thesis writing; University of Nairobi, Kenya(July 2009- 2014). A thesis entitled, inequalities and their spectral properties of some classes of operators in Hilbert spaces. (Expected year of graduation; Aug-2014.)

3.2 M.Sc,(Distinction); University of Nairobi, Kenya(2002-2005). Did a project entitled, Inequalities and spectral properties of classes of operators in Hilbert spaces.

3.3 B.Sc in mathematics, (First Class Honours); University of Nairobi (1997- 2001).

3.4 Computer Skills; Office Automation College, Bursar Hse. Nrb. (1998- 2001). Profficient in the following programming languages; Mathematica, Maple, MuPAD Pro, Euler, Macaulay, Matlab, Latex, Pascal, C++, Ms dos, Ms Excel and Ms Access.

3.5 K.C.S.E. Kaaga Boys, Meru County-Kenya, (1992-1995).

3.6 K.C.P.E. Tutua School, Meru County, (1987-1991).

3.7 Lower Primary; Mulathankari Primary School, Meru County-Kenya, (1981-1986).

4 SCHOLARSHIP AWARDS:

4.1 University of Nairobi scholarship; To persue an M.Sc in pure mathematics.

4.2 DAAD, (Deutscher Akademischer Austauschdienst- Germany Academic Exchange Service), scholarship; To persue a Ph.D in pure mathematics, (Operator Theory), in the University of Nairobi.

5 SEMINAS AND WORKSHOPS:

5.1 Dar-esalam University (June-2007); Attended an East African school on points in polytopes

5.2 University of Nairobi (April-2007); Attended an East African school on Upper points in polytopes

5.3 Makerere University (Jan-2007); Attended an East African school on combinatorial geometry.

5.4 Makerere University (July-2006); Attended an East African school on beauty of convex sets.

5.5 Mombasa (November 2005); Attended a school on algebraic geometry

5.6 University of Nairobi (April 2005); Attended a school on combinatorial geometry.

6 SCIENTIFIC PUBLICATIONS:

[**6.1**] S.K Imagiri, J.M Khalagai and G.P Pokhariyal, nth-Aluthge Transforms of w-Hyponormal Operators, Far East Jnr of Appld. Maths. Vol 56, No.1, 2011, pp 65-94.

Abstract

In this paper, the exact locations of w-hyponormal operators in inclusion series of different operator classes are shown. In addition, it is observed that, all nth-Aluthge transforms of linear operators have

equal spectra, and eventually, for w-hyponormal operators, it is proved that such transforms are not only spectraloid, but normaloid as well.

[6.2] S.K Imagiri, J.M Khalagai and G.P Pokhariyal, On the Normality of the Products of Generalized Aluthge Transforms of w-Hyponormal Operators, Far East Jnr of Appld. Maths. Vol 84, No.2, 2013, pp 95-111.

Abstract

w-hyponormal operators generalizes p-hyponormal operators but repeated Aluthge transformations of a w-hyponormal operator, improves the hyponormality of the operator. Here in, we set out to investigate some of the conditions under which such transformations results into a normal operator. And eventually,we will extend our observations to check the normality of the products of any two such transformations.

[6.3] S.K Imagiri, J.M Khalagai and G.P Pokhariyal, Restrictions On The Powers of nth - Aluthge Transforms of w-Hyponormal Operators, Far East Jnr. of Appld. Maths. Vol.85, number 1, 2013, pp 25-45.

Abstract

Powers of operators from any class, are not in general members of the same class. For instance, if T is a class (A) operator, then T^2 is not neccessarily a class (A) operator, but if T is an invertible class (A) operator, all of its powers happen to be class (A) operators. Unlike in Class (A) operators, every power of a w-hyponormal operator is a w-hyponormal operator. In this paper, we investigate the normality of the powers of generalized Aluthge transforms of w-hyponormal operators and that of the generalized Aluthge transforms of the powers of w-hyponormal operators.

[6.4] S.K.Imagiri, J.M.Khalagai and G.P.Pokhariyal. On The Normality Of The Products Of n-Power quasinormal Operators. Far East Jnr of Appld. Maths.Vol. 82, Number 1, 2013, pp 41-53.

Abstract

Given any two normal operators A and B on a Hilbert space H, it is known that AB is not normal in general. However, if A and B commute, then AB is also normal. In this account, we investigate some conditions under which AB becomes normal even when A and B are not necessarily normal.

[**6.5**] Imagiri Kathurima, *An Interplay Between n-Power quasinormal and w-Hyponormal operators,* Far East Jnr of Appld. Maths. Accepted for publication, 2014.

Abstract

In this monograph, via Aluthge transformations, it is proved that every n-Power normal operator is normaloid and through paranormality, w-hyponormal operators are shown to be indepedent from n-Power normal, hence from n-Power quasinormal operators. Nevertheless, an attempt to throw more materials- rather than the class of normal operators-, in the intersection of these non-normal classes is presented.

[**6.6**] Imagiri Kathurima, *Putnam-Fuglede theorem for n-Power quasinormal and w-hyponormal operators,* Far East Jnr of Appld. Maths. Accepted for publication, 2014.

Abstract

In this presentation, the familiar Putnam-Fuglede theorem is firstly investigated for n-Power quasinormal operators. Then, it's assymetric version is studied for n-Power quasinormal and w-hyponormal operators. As a consequence, more conditions implying normality, in these two operator classes, are struck via similarlity.

[**6.7**] Imagiri Kathurima, *Putnam's inequality for n-Power normal, n-Power quasinormal and w-hyponormal operators,* Pioneer jnl of mathematics and mathematical sciences. Accepted for publication, 2014.

Abstract

Every reducible operator can be decomposed into normal and completely non-normal operators. Unfortunately, there are several non normal operators which are irreducible. However, every operator whose self-commutator is bounded, is reducible. Putnam's inequality implies boundedness of the self-commutator for hyponormal operators. In this paper, the Putnam's inequality is studied for n-Power normal, n-power quasinormal and w-hyponormal operators.

[6.8] Imagiri Kathurima, *Berger-Shaw inequality for n-Power quasinormal and w-hyponormal operators,* Far East Jnr of Appld. Maths. Accepted for publication, 2014.

Abstract

Every reducible operator can be decomposed into normal and completely non-normal operators. Unfortunately, there are several non normal operators which are irreducible. However, every operator whose self-commutator is bounded, is reducible. Berger-Shaw inequality implies boundedness of the trace of the self-commutator for hyponormal operators. In this paper, the Berger-Shaw inequality is studied for n-Power normal, n-power quasinormal and w-hyponormal operators.

[6.9] Imagiri Kathurima, *∞-Power normal and ∞-Power quasinormal operators,* Pioneer jnl of mathematics and mathematical sciences, Accepted for publication, 2014.

Abstract

In this paper, ∞-Power normal and ∞-Power quasinormal operators are introduced. Amongst other results, it is proved that, ∞-Power normal operators have translation invariant property and that, if any operator and its adjoint happens to be ∞-Power quasinormal, then such an operator becomes normal

[6.10] Imagiri Kathurima, *Putnam-Fuglede theorem for n-Power normal and w-hyponormal operators,* Pioneer jnl of mathematics and mathematical sciences, Accepted for publication, 2014.

Abstract

Reducibility implies direct sum decompositions of Hilbert space operators and any pair of operators which satisfy the Putnam-Fuglede theorem is reducible. In this presentation, the familiar Putnam-Fuglede theorem is firstly investigated for n-Power normal operators. Then, it's assymetric version is studied for n-Power normal and w-hyponormal operators. As a consequence, more conditions implying normality, or even similarlity between these two operator classes, are deduced via this theorem.

7 MANUSCRIPTS:

Production of the following is in progress;

7.1 SMA 103, (Calculus 1), Lecture notes; For University of Nairobi, first year-science students.

7.2 SMA 202, (Elements of set theory), Lecture notes; For University of Nairobi, second year science students.

7.3 SMA 209, (Elements of algebra), Lecture notes; For University of Nairobi, second year science students.

8 RESEARCH INTERESTS:

Investigations on the following areas of study -which will certainly lead into more publications, are carried out; **8.1** Classifications of generalized Aluthge transforms of n-Power quasi normal operators and Class (Q)- normal operators.

8.2 The intersection between the following three non-normal operator classes; w-hyponormal operators, n-Power quasinormal operators and (p,k)-quasi hyponormal operators.

8.3 Behaviour and spectral properties of nth-Aluthge transforms of all class A(s,t) operators.

8.4 Sufficient conditions implying normality for both class A(s,t) and (p,k)-quasi-hyponormal operators and that of the products of the powers of operators from these classes.

8.5 Putnam-Fuglede theorem for the powers of generalized Aluthge transforms of non-normal operators, particularly those which includes all w-hyponormal operators.

8.6 Putnam's inequality and Berger-Shaw's inequality for both n-power quasinormal and w-hyponormal operators.

8.7 An interplay between n-Power quasinormal and Class $A(s,t)$ operators.

8.8 Looking for a general class which includes all w-hyponormal operators and all n-Power quasinormal operators. In line with this problem, we have so far managed to intoduce n-Power hyponormal operators, and a paper on their properties will be submitted soon.

9 REFEREES:

9.1 Prof. Jairus M.Khalagai; Head of Pure Mathematics, UON-SOM.

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9.2 Prof. G.P. Phokariyal; Head of Applied Mathematics, UON-SOM.

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9.3 Mr C. Achora; Senior lecturer, UON-SOM.

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