

Bio Data

Personal Data

Name: Roshdi Khalil

Present Post: Full Professor

Present Address: University of Jordan.

Field: Mathematics: Functional Analysis, Operator Theory, Approximation Theory,
And Fractional Calculus

Tel. 0777496378

Email: roshdi@ju.edu.jo

Awards Held

- 1) Kuwait University Prize for Outstanding Students, 1971, 1972, 1973.
- 2) McGill University Award for Distinguished graduate students 1976
- 3) **Shuman Prize for Young Arab Mathematicians 1988**
- 4) **Islamic organization for science prize/1997.**
(جائزة منظمة العالم الإسلامي للعلوم)

Scientific Achievement

- 1. Introduced the concept of Conformable fractional derivative where most of the world now is working on**
- 2. Worked and did scientific research on many branches of mathematics:**
 - (a) Harmonic Analysis**
 - (b) Operator Theory**
 - (c) Geometry of Banach spaces**
 - (d) Best approximation in Banach spaces**
 - (e) Remotality in Banach spaces**
 - (f) Fractional derivative**
 - (g) Fractional differential equations**
 - (h) Computer science**
- 3. Solved many questions asked by many mathematicians**
- 4. Wrote two texts mathematical books in Arabic**
- 5. Published a book of Arabic poetry**

Posts Held

- 1) Full Professor, University of Jordan/1998-

- 2) Dean of scientific research. Princes Sommaya Univ. 2003(sabbatical year)
- 2) Full Professor, Jordan University for science and technology, 1997-1998
- 3) Full Professor, Woman univ.for women, 1996-1997
- 4) Full Professor, Bahrain University, 1991-1996
- 5) Full Professor, Kuwait University, 1988-1990
- 6) Associate Prof., Kuwait University, 1983-1988
- 7) Assistant Prof., Kuwait University, 1979-1983
- 8) Lecturer, McGill University, 1977-1979

Thesis Supervised

More than 50theses. Here are some

- 1) Toeplitz Operators in Banach Spaces. M.SC, 1981
- 2) Schur Multipliers and absolutely summing operators.Ms.c, 1982
- 3) A Class of operator ideals. M.Sc 1988
- 4) Nuclear operators on metric spaces. M.Sc, 1988
- 5) Stability of operator ideals.M.Sc, 1996
- 6) Dominated sets in some operator ideal, Ms.c 1996.
- 7) Orthogonality in Banach spaces, Ms.c 1996.
- 8)Best Approximation in Vector Valued Function Spaces.Ms.c 2000
- 9) Extreme points in vector valued function spaces.Ms.c/2001
- 10) Semi-Groups of operators. Ph.D 2001.

- 11) Operator ideals in Banach spaces. Ms.c/2002.
- 12) Geometry Of function and operator spaces. Ph.D/2002.
13. Smooth Points in Operator and function spaces. Msc. 2003
- 13) Minimal Projections in Banach spaces. Msc. 2005.
- 14) Best Sim. Approx. in Operator and function spaces. Ph.d 2006
- 15) New type of orthogonality in Banach spaces. Msc. 2005
- 16) Remotal sets in vector valued functions. Msc. 2005.
- 17) Tensor product semigroups. Msc/2008
- 18) Isometries of certain operator spaces(2009)
- 19) Extreme points of tensor product of Banach spaces. Msc.(2010)
- 20) Isometries of tensor product spaces. Msc.2010

And many many other thesis that I don't keep record

Conferences

- 1) The 84th summer meeting of the American Math.Soc. Ann arbor-Mich.univ.U.S.A. Aug.18-22, 1980.
- 2) The second Arab math.soc.conf. Amman, Jordan, May 3-8, 1981.
- 3) The 86th summer meeting of the Amer.math.soc. Toronto-. Univ. Canada. Aug.22-27, 1982
- 4) Sabbatical year, univ.of Mich. Ann Arbor, U.S.A. 1985-1986.
- 5) American Math.Soc. summer conference, Providence, Rhodeiland, U.S.A. 1988.
- 6) Summer conf.of A.M.S. Minnesota, 1994.
- 7) Summer Conference of AMS, Toronto, Canada/2000.
- 8) American univ.math.conference. Sharja-uae. 2001
- 9) University of Sharjah math day. UAE. 2003.
- 10) Al-Ain University, UAE, 2004.

And many other conferences that I don't keep record

Courses Taught

1) Undergraduate:

- 1) Calculus I, II, III.
- 2) Linear Algebra
- 3) Set Theory
- 4) Differential Equations.
- 5) Linear Programming
- 6) Optimization Theory
- 7) Discrete math.
- 8) Advanced cal.
- 9) Real Analysis I
- 10) Real Analysis II
- 11) Complex Analysis
- 12) Advanced Linear Algebra.
- 13) Functions of Several Variables
- 14) Functional Analysis

2) Graduate Courses

- 1) Harmonic Analysis
- 2) Measure Theory
- 3) Advanced Functional Analysis
- 4) Theory of Operator Ideals
- 5) Theory of Tensor Products in Banach Spaces.
- 6) Complex analysis
- 7) Functional analysis
- 8) Fourier analysis
- 9). Topics in Functional analysis

Student Graduation Projects:

- 1) Vector valued continuous functions
- 2) Extreme points of
- 3) Dual of $C(I)$.
- 6) Tensor product operators in Hilbert spaces
- 7) the space L^p , $0 < p < 1$
- 8) The Banach fixed point theorem

4) Extreme points of L_p

9) The Hahn Banach theorem

5) Extreme points of $C[0,1]$.

Professor Roshdi Khalil

Ph.D. McGill University 1978

M.Sc. McGill University 1976

B.Sc. Kuwait University 1973

Referee For: -

1) Journal of Approximation Theory

2) Journal of mathematical analysis and application

3) Rocky Mountain J. of Mathematics

4. Medeterian Journal of mathematics

3) Many journals in the Arab world

And many other journals that I don't keep record for

Reviewer: Z. Math. And Math. Review

Publications

Total research Papers almost 200 papers

in different areas of mathematics

The CV Does not contain all research published papers.

Approximation Theory in Banach Spaces

- 1- Best approximation in L^p -spaces. Proc. Cambridge Phil. Soc. 94(1983)277-279.
- 2- Best approximation in vector valued function spaces. Rev. colom. de math. X(1985)313-22.
- 3- Best approximation in tensor product spaces, Numerical functional analysis and optimization, 8(1986)347-356.
- 4- Chebeshev sets and strictly convex metric spaces, Tam J . math. 17(1986)9-12.
- 5- Best approximation in L_1 -spaces, Journal of Numeric. Func. Analy. and Optimization. 9 (1987)1031-1037
- 6- Best approximation in metric spaces. Proceeding Amer. Math. Soc., 103(1988)579-586.
- 7- Best approximation in $L(X,Y)$. Proc. Camb. Phil. soc., 104 (1988)527-531.
- 8- Best approximation in $L_p(X,Y)$ II. Journal of approximation Theory, 59 (1988)269-299 (with Deeb, W.).
- 9- Best approximation in $L_p(I,X), 0 < p < 1$. Journal of approximation Theory, 58(1989) 68-77 (with Deeb, W.).

- 10- Vector valued Chebechev systems. Rev. de. colom. XXIII (1989)25-33 (with Izamil, A.).
- 11- Best approx. in function and operator spaces. Num. functional analysis and Optimization.11(1991) 917-927.
- 12- Best approximation in tensor product spaces Soochow J. of math.18(1992)397- 407(with Hussein, D.).
- 13- Alternation theorem for $C(I,X)$ and application to best local approximation. Tam. J. math. 24(1993)135-147 (with Alzamil, A.).
- 14- Alternation theorem for $C(I,X)$ and application to best local approximation. Tam. J. math. 24(1993)135-147 (with Alzamil, A.).
- 15- Proximality and unicity in vector valued function spaces. Numerical functional analysis and optimization.15 (1994) 23-29 (with Alzamil, A.).
- 16- Best approximation in $L_1(I,X)$. Proc. Amer. math. soc.123(1995)183-190 (with Saidi, F)
- 17- Strong proximality in function spaces. Toyama J. math.30(1996)1-12 (with Saidi , F).
- 18- Spectral approximation in $L(H)$.Numerical functional analysis and optimaization.21(2000) 693-714 (with Philip, M).
- 19- Best simultanious approximation in Banach spaces. Journal of approximation. Theoery, 116(2002)369-

379 (with Saidi, F.).

- 20- Best simultaneous approximation in Banach spaces. Journal of approximation. Theory, 116(2002)369-79
(with Saidi, F.).
- 21- f -proximality in function spaces. Dirasat, 30(2003) 93-96(with Abushamla, W).
- 22- Best approximation in locally integrable functions. Dirasat, 30(2003) 102-107.
- 23- Best approximation in L_1 -spaces. Journal of mathematical research.10(2001) 43-48.
- 24- Minimal Projections in tensor product spaces. Rend. Sem. Mat. Univ. Pol. Torino, 60(2003)167-174.
- 25- Proximality in Orlicz Bochner spaces. Tam.J.Math. 34(2003) 71-75. (with Khundugji, and Hussein).
- 26- New class of proximal subspaces in function spaces. International journal of pure and applied math. 8(2003) 131-136.
- 27- Remotal sets in vector valued functions. Sci. Math. Jap. 63(2006)395-403 (with Al-Sharif)
- 28- Proximality in $L_1(I, X)$. Turk. J. Math., 32, (2008), 187-195.
- 29- Remotality of Closed Bounded Convex Set in Reflexive Spaces. Num. Func. Analysis and Optim. 29(2008) 1166-1170 (with Sababha).
- 30- 30. Best Sim. Approximation in Function Spaces. J. Non Linear Func. Analysis and Differential

- Equations. 2(2008) 55-60 (with Abu-Sirhan).
- 31- Best Sim. Approx. In Function Spaces. J. of applied functional analysis. 4(2009)112-121 (with Abu-Sirhan).
- 32- Remotal sets in vector valued function spaces.. TJNSA **Vol. 2 No. 1, (2009) pp. 1-10.** (with Sababha).
- 33- Best Sim. Approx. in $L^\infty(I,X)$. Indian J. Math. 51(2009)391-400
- 34- Uniquely remotal sets in Banach spaces. J. computational analysis, **Vol. (13), No. (7), pp. 1233-1239** (with Sababhah)
- 35- Best approximation in uniform type spaces. European J. Math. **Vol. 2, No. 2, 2009, (231-238)**
36. Remotal sets and Krein Milman Type Theorem. J.non-conves linear analysis, 12(2001)5-15(with Sababha)
37. New Results on remotality in Banach spaces. Italian J. of Pure and applied mathematics.30(2013)59-66 (with Sababhah)
38. Every strongly remotal set in a Banach space is a singleton. British Journal of mathematics and computer science, 5(2015)28-34(with N. Matar).
- 39.. Proximinality in Operator Spaces, Scientiae Mathematicae Japonicae Online, e-2012, 249–257.(with Sababheh)
40. When an exposed point of a convex set is remotal. Journal of Applied Functional Analysis;Jan-Apr 2012, Vol. 7 Issue 1/2, p236(with L. Al-hawawshah)
41. Remotality of exposed points. J. Concrete and applicable mathematics. 12(2014)94-101
42. **Simultaneous Remotality in Operator Spaces.** British J. of Math. And Comp. sciences.6(2015)451-456
43. Uniquely remotal sets in Banach spaces. FILOMAT 2016.(with Sabaheh and Yousef)
44. Remotality in topological vector spaces.International Mathematical Forum (12)(2017) (71-75) (with Alzubaidi,S)

45. Proximality in Topological Vector Spaces. Academic Journal of applied mathematical sciences. 2(2016)98-101(with Shmasnah, A)

46. Some new results on certain types of proximality in Banach spaces. Adv. Inequal. Appl. 2018, 201

47. On the farthest point problem in Banach spaces

A Yousef, R Khalil, B Mutabagani

arXiv preprint arXiv:1903.00294(2019)

48. On the farthest point problem in Banach spaces

A Yousef, R Khalil, B Mutabagani

arXiv preprint arXiv:1903.00294(2018)

49. Some new results on certain types of proximality in Banach spaces

S Alsuradi, R Khalil

Advances in Inequalities and Applications 2018, Article ID 9

50 Remotal sets in tensor product spaces and ϵ -remotality

Salamah, H. and Khalil, R.

Journal of mathematics and computer science.19(2019)116-119

51. **ON THE FARTHEST POINT PROBLEM IN BANACH SPACES**

A. YOUSEF¹, R. KHALIL² AND B. MUTABAGANI³

JOURNAL OF COMPUTATIONAL ANALYSIS AND APPLICATIONS

2020

Geometry of Banach Spaces

- 1- Extreme points of the unit ball of Banach spaces. Toy. J. math. 4(1981)41-45.
- 2- Contractive operators of certain spaces, Coll. Math. XLIX(1985) 49-52.

- 3- Isometric multiplication of Hardy Orlicz spaces, Bull. Aust. Math. Soc. 34(1986)177-189 (with Marzuque, M. and Deeb, W).
- 4- Isometries of $L_p(\text{tensor})L_p$., Tam. J. Math.16(1985)77-85.
- 5- A class of extreme contractions in $L(p)$.Annali di mathematica pure ed applicata, CL(1989)1-5.
- 6- Extreme points and isometries of ϕ -nuclear operators on Hilbert spaces. Jour. of Mathematical analysis and application. 148(1990) 147-156.

- 7- Khalil, R. Orthogonality in Banach spaces, *Toy. J. Math.* 13(1990)185-205.
- 8- Exposed and smooth points of some classes of operators. *Journal of functional analysis.* 103(1992)217-228 (Deeb, W).
- 9- Extreme points and isometries of nuclear operators in Banach spaces. *Bull. Inst. math. acad.sinica.*19(1991) 153-156
(with Salih, M).
- 10- Orthogonality and Schatten classes in Banach spaces. *Soochow J. math.* 19(1993)325- 337 (with Hussein, D).
- 11- Smooth points of vector valued function spaces. *Rocky mountain Journal of math.*24(1994)505-512 (with Deeb,W).
- 12- Extreme nuclear operators. *Arch. der math.* 96(1997)127-135 (with Saidi, F).
- 13- Smooth points in operator spaces. *Demonstrata. math.* 4(1996)9-20.
- 14- Compact extreme operators in L_p -operators. *Indian J. of pure and applied math.* 29(1998)617-619 (with Grzaslewicz, R).
- 15- Schatten type classes on sequence spaces. *Tam. J. Math.* 30(1999)9-20.
- 16- Geometry of Modulus spaces. *Georgian Mathematical Journal.* 9(2002)295-302.

- 17- Isometries of certain operator spaces. Proc. Amer. Math. Soc. 132(2003)1473-1481. (with Saleh).
- 18- Multi-smooth points in Banach spaces.. Missouri J. Math. 17(2005)76-87 (with Saleh).
- 19- Isometries of Orlicz Bochner spaces. To appear. Dirasat. (with Khundugji and Hussein).
- 20- Extreme and Nice operators on certain function spaces. Math. Sci. Japan. 65(2007)1253-1260 (with Saleh).
- 21- New types of orthogonality in Banach spaces. Accepted. Advances in applied mathematical analysis.
22. Extreme type Points in Banach spaces. JJMS, 4(2011)103-113(with Shgairat)
23. Characterization of isometries via remotality. I.Math.Forum. 5(2010) 29-32 (with Al-Dabbas)
- 24. Isometries of p-nuclear type operators. Journal of Mathematical and Computational Science. 5(2015)91-98**

Operator Ideals and Tensor Product Spaces

- 1- M-ideals in Banach spaces, Revista colom. de math. XVIII(1984)33-40.
- 2- Tensor product of non locally convex topological vector spaces, Illinois J. Math. 30(1986)594- 601 (with Deeb, W.).
- 3- Function spaces, absolutely summing operators and applications. Kobe J. of Math. 5(1988), 7-20 (with Ayesh, S).
- 4- ϕ -summing operators, J. Mathematical analysis

- and applications.127(1987)577-584.
- 5- Dominated sets of p-summing operators. Far East J. of math. (1998)59-68 (with Habeeb, M).
 - 6- Schatten type classes. amk. J. Math. 30(1999)9-20.
 - 7- Some stable of operator ideals. Arc. Math. 37(2001)125-130 (with Aziz, M).

Operator Theory

- 1- Spectrum of a class of Toeplitz. operators, J. Univ. Kuwait.7(1981),89-4 (Faour, N).
- 2- On some sequence spaces, Bull. Aust. Math. Soc. 25(1982)231-241.
- 3- Toeplitz operators on Banach spaces. Bull. U. M. I. 6-2B(1983)229-239 (with Ali, F).
- 4- Toeplitz operators in vector valued function spaces, J. univ. kwat.12(1985)5-12 (with Faour, N).
- 5- p-representable operators on Banach spaces, International J. Math. 9(1986)653-658.
- 6- On the spectrum of weighted shift operator, Houston J. Math.13(1987)1031-1037 (with Faour, N).
- 7- On a theorem of Weiss. Arch. der math. 65(1995)69-70.
- 8- Daugaviet equation in vector valued function spaces. Pan. amer. J. math. 6(1996)51-53.

- 9- Norm estimates of certain operators. Numerical functional analysis and optimization. 1(2000)579-588 (with Alkhalid, K).
- 10- Neumann Operators on Hilbert spaces. J. Inst. Math. and Com. Sci.14(2001)163-165.
- 11- Some remarks on minimal projections in tensor product spaces. International J. of Evolution equations [no. 3\(2009\)369--378.](#)

Harmonic Analysis

- 1- Trace-Class norm multipliers, Proc. Amer. Math. Soc. 79(1980)379-378.
- 2- The Hankel multipliers, Toyama math. journal. 3(1980)101-110.
- 3- On the algebra of multipliers, Canadian J. Math. XXXIII (1991)786-794.
- 4- Multipliers for some spaces of vector valued functions. J. uinv. kuwt. 8(1981)1-8.
- 5- Pointwise multipliers, J. univ. kuwt. 8(1981)9-17.
- 6- Multipliers for Schatten classes, Journal of functional analysis 47(1982)305-313.
- 7- Schure multipliers on compact spaces, J. univ. kwat.11(1984)191-196.
- 8- Lp-projections and Schur multipliers. J. univ. kwat. 11(1984)41-47 (with Ayesh S).

- 9- A remark on Schur multipliers of operator spaces. International journal of mathematics. 3(2003)1411-414.

Complex Analysis

1. The weak Behren property and the corona, Hokkaido. J. of Math. VIII(1984)119-122 (with Deeb, W. and Younis, R).
2. Some remarks on function algebras, Rend. conti. math. 6(1986)265-269.
3. Inclusions of Hardy Orlicz spaces, International J. Math. 9(1986)429-434.

Semi-groups of Operators

- 1- One parameter semi groups of operators of Schatten classes C_p , Funkcialaj Ekvacioj, 32 (1989)389-394 (with Deeb, W).
- 2- Two parameter semi groups. J. of applied mathematics and Computational. 156(2004)403-414.(with Al-Sharif).
- 3- Hille Yoshida type inequality. Rendiconti del Seminario Matematico dell'Universita' e del Politecnico di Torino. 62(2004)165-176 (with Al-Sharif).
- 4- Positive semigroups of operators. Journal of Computational and applicable mathematics,

- 7(2009)328-340. (with Al-Shereef, S).
- 5- Generators of C-semi groups. **Math. Studi**, [27 \(2007\), no. 2, 139–148](#)(with Al-Sharif)
- 6- Tensor product semigroups of operators. EJPAM, 3(2010)881-898.(with Edrissi and Al-Mirbati)
- 7- Positive tensor product semigroups of operators. IJAM,22(2009)793-798(with R. Al-Mirbati)
- 8-** Tensor product of C-semigroups of operators. Journal of semigroup theory and applications. 2014(with Yasin, O)
9. **C0 -semigroup and operator ideals.** Rendiconti del Seminario Matematico 01/2004; 2(2).(with Al-Sharif)
- .

Operator Inequalities

1.

[Operator-norm inequalities and interpolated trace inequalities](#)
A Yousef, M Sababheh, R Khalil
Linear and Multilinear Algebra 63 (3), 455-465

2015

2.

[On the Invariant Subspace Problem](#)
M Sababheh, A Yousef, R Khalil
Bulletin of the Malaysian Mathematical Sciences Society 39 (2), 699-705

2016

3. [Interpolated young and Heinz inequalities](#) 2015

M Sababheh, A Yousef, R Khalil
Linear and Multilinear Algebra 63 (11), 2232-2244

Differential Equations

1. Tensor product technique and the homogenous Abstract Cauchy problem. Journal of applied functional analysis, 4(2010)121-139.
2. Tensor product technique and the non-homogenous Abstract Cauchy Problem. **IJAM, Volume 23 No. 1 2010, 137-158**
3. Atomic solutions for certain inverse problems. EJPAM, 3(2010) 725-729(with L.Abdullah)
4. Two Rank solutions of the abstract Cauchy Problem. J. of Semigroup theory and applications. (2014)1-15
5. Atomic solution of second order vector valued fractional differential equations
A Gaith, R Khalil, M Horani
J. Math. Comput. Sci. 10 (3)(2020), 601-605
6. Operators of exponential type and the abstract Cauchy problem
R Khalil, M Horani, R Lahcene
Journal of semigroup theory and applications 2020 (4), 1-5

Fractional Calculus

- 1.

1. **ABEL'S FORMULA AND WRONSKIAN FOR CONFORMABLE FRACTIONAL DIFFERENTIAL EQUATIONS.** International Journal of Differential Equations and Applications 13(2014)177-183(with Abu Hammad,M.)
2. **Legendre fractional differential equation and Legendre fractional polynomials.** International Journal of Applied Mathematical Research, 3(2014)214-219(with Abu-Hammad,M)
3. **Fractional Fourier series with applications.** American Journal of computational and applied math. 4(2014) 187-191
4. Conformable fractional heat differential equation. International journal of pure and applied mathematics.94(2014)215-221(with abu-Hammad, M.)
5. **A new definition of fractional derivative.** **Journal of computational and applied math.** 264(2014)65-70.
6. Fractional semi-groups of operators. J. of semi-group theory and applications. 7(2015) 1-9(With Al-Horani and Abdeljawad)
7. Undetermined coefficients for fractional differential equations.Journal of mathematics and computer science. 16(2016)140-146(with Al-Horani and Anderson)
8. Variation of parameters for fractional differential equations. Journal of mathematics and computer science. 16(2016)147-153(with Al-horani and Abu Hammad)
9. Systems of fractional differential equations. Asian Journal of Mathematics and Computer Research 12 (2), (120-126) 2016(with Abu Hammad,M.)
- 10.
- 11.**Solution of some conformable fractional differential equations.** International Journal of Pure and Applied Mathematics 103(4)2015(667-673)
12. **REDUCTION OF ORDER OF FRACTIONAL DIFFERENTIAL EQUATIONS.**
. J. Math. Comput. Sci. 8 (2018), No. 6, 683-
23. **FRACTIONAL ANALYTIC FUNCTIONS.** Far East Journal of Mathematical Sciences Volume 103, Number 1, 2018, Pages 113-123
24. **Total Fractional Differentials With Applications to Exact Fractional Differential Equations.** Feb 2018 International Journal of Computer Mathematics
25. **RANK TWO SOLUTIONS OF THE ABSTRACT CAUCHY PROBLEM.** J. Semigroup Theory Appl. 2018, 20
26. **SOME SOLUTIONS OF FRACTIONAL INVERSE PROBLEMS.** J. Semigroup Theory Appl. 2018, 20

27. Certain SOLUTIONS OF FRACTIONAL INVERSE PROBLEM. 2018-J.semigroup theory and application

28. [Geometric meaning of conformable derivative via fractional cords](#)

Khalil,R. , AL Horani, M. and M. Abu-Hammad

Journal of mathematics and computer science 19, 241-245

29. [FRACTIONAL DISTRIBUTIONS AND PROBABILITY DENSITY FUNCTIONS OF RANDOM VARIABLES GENERATED USING FDE](#)

- [Ma'Mon Abu Hammad](#), Awad, A., Khalil, R. and [Aldabbas](#), E.
- J. Math. Comput. Sci. 10 (2020), No. 3, 522-534
-
-

Computer Science

1. Lambda type cal. J. of Inst. of math. and comp. sci.
12(1999)213-219 (with Jabri etal.).

Books Published

1. Omer Al-Khayyam book of Algebra/Translated to English/
Center for Moslem contribution to civilizations
2. Differential equations. Dar Almanahij,
Edition 1 1998. (in arabic)
Edition 2/ 2007.
3. Calculus I. Dar Hunain, (with D.Hussein)

Edition 1 1995. (in Arabic)

Edition 2/ 2003

4. ديوان شعر بعنوان المشكاة 2006