C.V.
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Personal Information: -

Name : Mohammed Hassan Al Horani
Place and Date of Birth: Jordan – 1970
Social Status: Married
Address: Jordan – Amman, Queen Rania Street

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Qualifications: -

1992 – 1996

B. Sc. in Mathematics,

Yarmouk University

1996 – 1999

Master Degree in Mathematics,

Yarmouk University

2000 – 2004
Ph. D in Mathematics (Differential Equations via Functional Analysis)
University of Bologna (Italy) (scholarship from Jordan University)

Experience: -

2004 - 2009
Assistance professor, Math. Dep. The University of Jordan.

2010- **2011**
Associate Professor, Math. Dep. The University of Jordan

2011—2016
Associate Professor, Math. Dep.: Hail University, Saudi Arabia

2017- till now
Full Professor, Math. Dep. The University of Jordan

Conferences and Meetings: -

1- Internet Seminar, operator Matrices and Delay Semigroups,
June 15-22, 2003, Blaubeuren, Germany

2- Interplay between (C_0)- Semigroups and PDEs:
Theory and applications, September, 22-27, 2003, Bari, Italy.

3- Evolution Equations, Inverse and Direct Problems,
June, 21-26, 2004, Italy.

4- Differential Equations: Inverse and Direct Problems,
June, 20-24, 2005, Italy.

5- Differential Equations: Inverse and Direct Problems,
September, 18-21, 2006, Italy.

6- Evolution Equations, Semigroups and Boundary Conditions, July, 2010,
Germany.

7- "PDE's, Semigroup Theory and Inverse Problems", September, 2010,
Italy.

8- Conformable Fractional Calculus With Applications To Differential Equations,
Diponegoro, Indonesia, October, 2020.

Supervisor of many Master and Ph. D Students: -

1- Taha Al-Mara'beh: Inverse Problem for First-Order Integro-differential Equations in Banach Spaces, (2007).

2- Samia Bushnaq: Identification Problem for Abstract Ordinary Differential Equations (2007).

3- Galeb Gumah: Second Order Differential Equations in Banach Spaces, (2006).

4- Fadi Awawdeh: Differential Equations in Banach Spaces with Applications, (2006). Ph.D.

5- Abdalhalim Zigan: Tensor Product Technique for Solving Degenerate Abstract Cauchy Problem, 2008, Ph.D.

6- Lahcene Rabhi, Conformable Abstract Cauchy Problem with Applications, 2020, Ph.D.

7- Ilham Kadri, Solution of Somw Classes of Conformable Partial Differential Equation, 2020, Ph.D.

Courses Taught: -

- **B. Sc. Courses:**

    Calculus I, II and III

    Advanced Calculus

    Ordinary Differential Equations, I and II

    Partial Differential Equations, I and II

    Methods of applied Mathematics

    Mathematics for Engineering I and II

    Topology (Hail University)

    Functional Analysis (Hail University)

    Real Analysis (Hail University)

    Complex Analysis (Hail UNiversity)

    Master Degree Courses:

    1) Methods of Applied Mathematics
    2) Functional Analysis

- **Ph. D. Courses:**

    1) Theory of Ordinary Differential Equations
    2) Methods of Applied Mathematics
    3) Advanced Partial Differential Equations

- **Important References of the Graduate courses:**

    1. A short course of operator semigroups. Engel-Nagel

       (Main text Book)
    2- Semigroup of Linear operators and Applications. Goldstein, J.

       (Important for Applications)
    3- Degenerate Differential Equations in Banach spaces. Favini-Yagi.

       (Important for singular equations)
    4- Methods For Solving Inverse Problems In Mathematical Physics,

        Prilepko-Orlovsky-Vasin.

(Important for Inverse problem).

5- Semigroups of Linear operators and applications to partial differential Equations. Pazi, A.

6- Theory of ordinary Differential Equations. Coddington, E., Levinson, N.

Other Activities: -

1- Member of the Qualifying Exam committee for Master Degree.

2- Member of the Qualifying Exam committee for Ph. D Degree.

3- Committee of preparing B. Sc. Students to qualifying Exam.

4- Committee of Scientific research in the department of Math.

5- Committee of Scientific research in the Science Faculty

6- Committee of computerizing Calculus-I Exams.
7- Recruitment Committee (Hail University)
8- Academic Committee   (Hail University)

Some Published Articles: -

L. Rabhi, M. Al Horani, R. Khalil, Inhomogeneous conformable abstract Cauchy problem, Open Mathematics 19 (1), 690-705, 2021

M. Al Horani, A. Favini, H. Tanabe, Singular integro-differential equations with applications, Evolution Equations & Control Theory, 2021

I. Benkemache, M. Al-horani, R. Khalil,
Tensor Product and Certain Solutions of Fractional Wave Type Equation
European Journal of Pure and Applied Mathematics 14 (3), 942-948, 2021

F. Seddiki, M. Al-horani, R. Khalil,
Finite Rank Solution for Conformable Degenerate First-Order Abstract Cauchy Problem in Hilbert Spaces,

European Journal of Pure and Applied Mathematics 14 (2), 493-505, 2021

S. Al-Sharif, M. Al Horani, R Khalil, The Hille Yosida Theorem for Conformable Fractional Semi-Groups of Operators, Missouri Journal of Mathematical Sciences 33 (1), 18-26, 2021

M. Al Horani, A. Favini, Degenerate Differential Problems with Fractional Derivatives, Bruno Pini Mathematical Analysis Seminar 11(2), 47-68, 2021

M Al Horani, M Fabrizio, A Favini, H Tanabe, Fractional Cauchy Problems for Infinite Interval Case, Discrete & Continuous Dynamical Systems-S 13 (12), 3285, 2020

M Al Horani, M Fabrizio, A Favini, H Tanabe, Fractional Cauchy Problems and Applications, Discrete & Continuous Dynamical Systems-S 13 (8), 2259, 2020

 Kadri, M Horani, R Khalil, Tensor product technique and fractional differential equations, J. Semigroup Theory Appl. 2020, Article ID 6 , 2020

M Al Horani, M Fabrizio, A Favini, H Tanabe, Inverse Problems for Degenerate Fractional Integro-Differential Equations, Mathematics 8 (4), 532, 2020

M Mhailan, MA Hammad, M Al Horani, R Khalil, On fractional vector analysis, J. Math. Comput. Sci. 10 (6), 2320-2326, 2020

M Al-Horani, R Khalil, I Aldarawi, Fractional Cauchy Euler Differential Equation, Journal of Computational Analysis & Applications 28 (2), 2, 2020

R Khalil, M Horani, R Lahcene, Operators of exponential type and the abstract Cauchy problem, J. Semigroup Theory Appl. 2020, Article ID 4, 2020

A Gaith, R Khalil, M Al Horani, Atomic solution of second order vector valued fractional differential equations, J. Math. Comput. Sci. 10 (3), 601-605, 2020

M Al Horani, M Fabrizio, A Favini, H Tanabe, Fractional Cauchy Problems for Infinite Interval Case-II, Mathematics 7 (12), 1165, 2019

M Al Horani, A Favini, H Tanabe, Direct and inverse fractional abstract Cauchy problems, Mathematics 7 (11), 1016, 2, 2019

R Khalil, M AL Horani, MA Hammad, Geometric meaning of conformable derivative via fractional cords, Journal of mathematics and computer science 19, 241-245, 4, 2019

M AL Horani, R Khalil, Total fractional differentials with applications to exact fractional differential equations, International Journal of Computer Mathematics 95 (6-7), 1444-1452, 16, 2018

M Al Horani, M Fabrizio, A Favini, H Tanabe, Direct and inverse problems for degenerate differential equations, ANNALI DELL'UNIVERSITA'DI FERRARA 64 (2), 227-241, 4, 2018

M AL Horani, M Fabrizio, A Favini, H Tanabe, Fractional Cauchy problems and applications, Discrete & Continuous Dynamical Systems-S, 3, 2018

R Khalil, A Yousef, M Al Horani, M Sababheh, Fractional analytic functions, Far East J. Math. Sci 103, 113-123, 3, 2018

EM Rabei, M Al Horani, Quantization of fractional singular Lagrangian systems using WKB approximation, International Journal of Modern Physics A 33 (36), 1850222, 2, 2018

M Abu Hammad, M Al Horani, A Shmasenh, R Khalil, Reduction of order of fractional differential equations, J. Math. Comput. Sci. 8 (6), 683-688, 2018

S Khamis, M Al Horani, R Khalil, Rank two solutions of the abstract Cauchy problem, J. Semigroup Theory Appl. 2018, Article ID 3, 2018

M Al Horani, M Fabrizio, A Favini, H Tanabe, Identification problems for degenerate integro-differential equations, Solvability, Regularity, and Optimal Control of Boundary Value Problems for PDEs, 55-75 , 2, 2017

M Al Horani, A Favini, H Tanabe, Parabolic first and second order differential equations, Milan Journal of Mathematics 84 (2), 299-315, 4, 2016

M Al Horani, A Favini, H Tanabe, Inverse problems for evolution equations with time dependent operator-coefficients, Discrete & Continuous Dynamical Systems-S 9 (3), 737, 3, 2016

M Al Horani, M Abu Hammad, R Khalil, Variation of parameters for local fractional nonhomogenous linear-differential equations, 23, 2016

R Khalil, M Al Horani, D Anderson, Undetermined coefficients for local fractional differential equations, J. Math. Comput. Sci 16, 140-146, 13, 2016

MA Horani, A Favini, Inverse problems for control theory, NEW TRENDS IN DIFFERENTIAL EQUATIONS, CONTROL THEORY AND OPTIMIZATION , 173-183, 2016

M Al Horani, A Favini, Inverse Problems for Parabolic Differential Equations from Control Theory, Bruno Pini Mathematical Analysis Seminar 6 (1), 1-14, 1, 2015

T Abdeljawad, M AL Horani, R Khalil, Conformable fractional semigroups of operators, J. Semigroup Theory Appl. 2015, Article ID 7, 63, 2015

M Al Horani, A Favini, Perturbation method for first-and complete second-order differential equations, Journal of Optimization Theory and Applications 166 (3), 949-967, 10, 2015

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