



PART ONE: PERSONAL AND ACADEMIC DATA

Name: **Messaoud BOUNEKHEL**,

Date of Birth: **15/12/1973**

Current Academic Rank: **Full Professor**

Address: Department of Mathematics, College of Science, King Saud University,
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Academic Degrees:

1- **B.A./B.Sc.**, University of Batna, College of Science, Batna, Algeria, 30 /06/ 1994.

2- **Master:** University of Montpellier 2, College of Science, Montpellier, France, 30/06/1995. *Title of Master's Thesis: Viscosity sub-derivatives and solutions in smooth Banach spaces and its applications to metric regularity.*

3- **Ph.D.:** University of Montpellier 2, College of Science, Montpellier, France, 21 /01/1999. *Title of Ph.D. Dissertation: Tangential regularity in non smooth analysis.*

PART TWO: RESEARCH WORK

A) Awards:

1- King Saud University Award for Scientific Excellence (Award for best book author) for the year 2012/2013 for the book: *Regularity concepts in Nonsmooth Analysis: Theory and Applications*, (304 pages), December 2012, *Springer Optimization and its Applications*, Vol. 59. By Messaoud Bounkhel.

2- Best Research Paper Award 2014 during CMCGS 2014 conference in Singapore. [link:https://www.youtube.com/watch?v=s3wRtFwcqv8](https://www.youtube.com/watch?v=s3wRtFwcqv8) .

B) Published Books

1. M. Al-Abdullatif and **M. Bounkhel**, *Elementary Mathematics for Students of Scientific Faculties*, Edition King Saud University, 2014.

2. **M. Bounkhel**, *Regularity concepts in Nonsmooth Analysis: Theory and Applications*, (304 pages), 2012, *Springer Optimization and its Applications*, Vol. 59. <http://www.springer.com/mathematics/book/978-1-4614-1018-8>.

3. Z. Elbalkhi, L. Tadj, and **M. Bounkhel**, *Introductory to Inventory theory (in Arabic)* (Textbook for 222 OR), College of Science, King Saud University, 2004.

C) Published Papers:

- 1- **M. Bounkhel** and L. Thibault, *Scalarization of tangential regularity of set-valued mapping*, Set-valued Analysis, 1999, 7, No.1, pp. 33-53.
- 2- **M. Bounkhel** and L. Thibault, *Subdifferential regularity of directional Lipschitzian functions*, Canad. Math. Bull., 2000, 43, No. 1, pp. 25-36.
- 3- **M. Bounkhel** and L. Thibault, *On various notions of regularity of sets in non smooth analysis*, Nonlinear Anal.: Theory, Methods and Applications, 2002, 48, No. 2, pp. 223-246.
- 4- **M. Bounkhel** and L. Thibault, *Directionally pseudo-Lipschitz set-valued mappings*, J. Math. Anal. Appl., 2002, 266, No. 2, pp. 269-287.
- 5- **M. Bounkhel**, *On Arc-wise essentially smooth mappings between Banach space*, J. Optimization, 2002, 51, No. 1, pp. 11-29.
- 6- **M. Bounkhel** and L. Thibault, *Tangential regularity of Lipschitz epigraphic set-valued mappings*, Optimization, pp. 69-82, Lecture Notes in Econom. and Math. Systems, Springer, Berlin, 2000, 481.
- 7- **M. Bounkhel**, *On the distance function associated with a set-valued mapping*, J. Nonlinear and Convex Analysis, 2001, 2, No.2, pp. 265-278.
- 8- **M. Bounkhel**, *Existence results of non convex differential inclusions*, Portugaliae Mathematica, 2002, 59, No. 3, pp. 283-310.
- 9- **M. Bounkhel**, *General existence results for second order non convex sweeping process with unbounded perturbations*, (Portugal) Port. Math. **60** (2003), no. 3, 269--304.
- 10- **M. Bounkhel**, L. Tadj, and A. Hamdi, *Iterative Schemes to Solve Non convex Variational Problems*, J. Ineq. Pure & Appl. Math., 2003, 4, Issue 1, Article 14.
- 11- **M. Bounkhel** and M. Yarou, *Existence results for nonconvex sweeping processes with perturbations and with delay: Lipschitz case*, Arab Journal of Mathematics, 2002, 8, No. 2, pp. 1-12.
- 12- S. Mecheri and **M. Bounkhel**, *Some variants of Anderson's Inequality in $C1$ -classes*, J. Ineq. Pure & Appl. Math., 2003, 4, Issue 1, Article 24.
- 13- S. Mecheri and **M. Bounkhel**, *Global minimum and Orthogonality in $C1$ classes*, J. Math. Anal. Appl. **287** (2003), no. 1, pp. 51-60.
- 14- **M. Bounkhel** and D. Azzam, *Existence results for second order nonconvex sweeping process*. Set-valued analysis, Set-Valued Anal. **12** (2004), no. 3, pp. 291-318.
- 15- **M. Bounkhel** and D. Azzam, *Théorèmes d'existence pour des les inclusions différentielles du second ordre*, C.R.A.S., Serie I, 336, 2003, 657-659.
- 16- **M. Bounkhel** and M. Yarou, *Existence results for first and second order nonconvex sweeping processes with perturbations and with delay*, Port. Math, **61** (2004), no. 2, pp. 207-230.
- 17- **M. Bounkhel**, *Scalarization of normal Fréchet regularity for set-valued mappings*, New Zealand Journal of Mathematics, (New Zealand), 2004, **33**, No. 2, pp. 129-146.
- 18- **M. Bounkhel**, *Global minimum of nonlinear mappings and Orthogonality in C^1 - Classes*, New Zealand Journal of Mathematics, (New Zealand), 2007, **36**, pp. 147-158.
- 19- **M. Bounkhel**, *Existence results for second order nonconvex sweeping processes with perturbations and with delay: Fixed point Approach*, Georgian Mathematical Journal, (Georgia), 2006, 13, No. 2, pp. 239-249.
- 20- **M. Bounkhel**, *On minimizing the norm of linear maps in C_p -classes*, Applied Sciences (APPS), (Romania), 2006, 8, No. 1, pp. 40-47.
- 21- **M. Bounkhel**, *Existence and Uniqueness of some variants of Nonconvex sweeping processes*, Journal of Nonlinear and Convex Analysis, (Japan), 2007, 8, No. 2, pp. 311-323.
- 22- **M. Bounkhel**, *Arc-wise essentially tangentially regular set-valued mappings*, CUBO a Mathematical Journal, (Brazil), Cubo **10** (2008), no. 1, 43-66.
- 23- **M. Bounkhel** and A. Jofre, *Subdifferential stability of the distance function and its applications to nonconvex economies and equilibrium*, Journal of Nonlinear and Convex Analysis, (Japan), (2004), 5, No.3, pp. 331-347.
- 24- **M. Bounkhel** and J. Bounkhel, *Inegalitees Variationnelles Nonconvexes*, (French) [Nonconvex variational inequalities], ESAIM Control Optim. Calc. Var. (France), (2005), 11, No. 4, pp. 574-594.
- 25- **M. Bounkhel** and T. Haddad, *Existence of Viable Solutions for Nonconvex differential inclusions*, Electronic Journal of Differential Equations (EJDE), (USA), (2005), No. 50, 10 pp.
- 26- **M. Bounkhel** and B. El-Sinan, *An iterative method for nonconvex equilibrium problems*, JIPAM. J. Inequal. Pure Appl. Math. (Australia), (2006), 7, No. 2, Article 75, 8 pp.
- 27- **M. Bounkhel** and L. Thibault, *Nonconvex sweeping process and prox-regularity in Hilbert space*. J. Nonlinear Convex Anal., (Japan), 2005, **6**, No. 2, pp. 359-374.

- 28- **M. Bounkhel** and L. Tadj, *Minimizing Energy use for road expansion in Transportation system using optimal control theory*, Appl. Math. E-Notes, (Taiwan), 2006, 6, pp. 159-166.
- 29- **M. Bounkhel** and T. Haddad, *An existence result for a New Variant of the Nonconvex Sweeping Process*, Portugaliae Mathematica, (Portugal), 2008, 65, Fasc. 1, 2008, pp. 33-47.
- 30- **M. Bounkhel**, L. Tadj, and R. Hedjar, *Nonlinear receding horizon control of production inventory systems with deteriorating items*, Yugoslav Journal of Operation Research(YUJOR), (Serbia and Montenegro), Yugoslav Journal of Operation Research (YUJOR), 2008, 10, n. 8, 1-9.
- 31- **M. Bounkhel**, and L. Tadj, *Optimal control of deteriorating production inventory systems*, Applied Sciences (APPS), (Romania), 2005, 7, pp. 30-45.
- 32- **M. Bounkhel**, L. Tadj, and Y. Benhadid, *Optimal control of a production system with inventory level dependent demand*, Appl. Math. E-Notes, (Taiwan), 2005, 5, pp. 36-43.
- 33- R. Hedjar, **M. Bounkhel**, and L. Tadj, *Receding horizon control of a hybrid production system with deteriorating items*, Nonlinear Analysis, (USA), 2005, 63, No. 3, pp. 405-422.
- 34- R. Hedjar, **M. Bounkhel**, and L. Tadj, *Predictive control of periodic-review production inventory systems with deteriorating items*, TOP published by Sociedad de Estadistica e investigacion Operativa Madrid Spain , (Spain), 2004, 12, No. 1, pp. 193-208.
- 35- R. Hedjar, **M. Bounkhel**, and L. Tadj, *Self-tuning optimal control of periodic-review production inventory systems with deteriorating items*, Adv. Model. Optim. (Romania), 2007, 9, No. 1, pp. 91-104.
- 36- L. Tadj, **M. Bounkhel**, and Yacine Benhadid, *Optimal control of a production inventory system with deteriorating items*. International J. of Systems Science, (United Kingdom), 2006, 37, No. 15, pp. 1111-1121.
- 37- Yacine Benhadid , L. Tadj, and **M. Bounkhel**, *Optimal control of production inventory systems with deteriorating items and dynamic costs*. Appl. Math. E-Notes, (Taiwan), 2008,8, pp. 194-202.
- 38- **M. Bounkhel** and L. Tadj, *Optimal design of a milk service queue*, Investigacao Operacional, Publication of the APDIO - Associação Portuguesa de Investigação Operacional, (Portugal), 2008., Vol. 26, pp. 157-164.
- 39- **M. Bounkhel** and R. Al-Yusof, *First and Second Order Sweeping Processes in Reflexive Smooth Banach spaces* , Set-Valued Var. Analysis, Vol. 18, No. 2, 151-182, 2010.
- 40- **M. Bounkhel** and B. R. Al-Senan, *General existence results for nonconvex third order differential inclusions*, Electronic Journal of Qualitative Theory and Differential Equations, No. 21, 10 pp., 2010.
- 41- **M. Bounkhel** and R. Al-Yusof, *Proximal Analysis in reflexive smooth Banach spaces*, Nonlinear Analysis Theory, Methods & Applications, Vol. 73, Issue 7, 1921-1939, 2010.
- 42- Zhe G. Zhang, L. Tadj, and **M. Bounkhel**, *Cost Evaluation in M/G/1 Queue with T-Policy Revisited*, EJOR European Journal of Operation Research, 214 (2011), pp. 814-817.
- 43- **M. Bounkhel** and C. Castaing, *State dependent Sweeping process in reflexive smooth Banach spaces*. Set-valued and Variational Analysis, Jun2012, Vol. 20 Issue 2, pp. 187-201.
- 44- **M. Bounkhel**, *Implicit differential inclusions in reflexive smooth Banach spaces*, accepted 10 March 2011, Proceedings of the Americam Mathetical Society, Aug2012, Vol. 140 Issue 8, pp. 2767-2782.
- 45- **M. Bounkhel**, *Existence of Solutions for convex sweeping processes in p-uniformly smooth and q-uniformly convex Banach spaces*, Electronic Journal of Differential Equations, 2012, Vol. 2012, pp. 1-6.
- 46- **M. Bounkhel**, *Existence results for second order convex sweeping processes in p-uniformly smooth and q-uniformly convex Banach spaces*, E. J. Qualitative Theory of Diff. Equ., No. 27 (2012), pp. 1-10.
- 47- **M. Bounkhel** and B. R. Al-Senan, *Proximal Subdifferentials in Lp-spaces and Applications to Variational Problems*, Journal of Nonlinear and convex analysis, 2012, Vol. 13 Issue 2 pp. 293-312.
- 48- **M. Bounkhel** and B. R. Al-Senan, *Implicit second order differential inclusions in reflexive smooth Banach spaces*, Set-Valued and Variational Analysis, Mar 2013, Vol. 21 Issue 1, p1-16.
- 49- **M. Bounkhel** and B. R. Al-Senan, *General existence results for third order nonconvex state dependent sweeping processes with unbounded perturbations*, Journal of Applied Mathematics 2012. pp. 1-17.
- 50- **M. Bounkhel**, *Directional Lipschitzness of minimal time functions in Hausdorff topological vector spaces*, SVAA, 2013, DOI 10.1007/s11228-013-0247-2.
- 51- **M. Bounkhel** , *On subdifferentials of a minimal time function in Hausdorff topological vector spaces*, 2013, Applicable Analysis: An International Journal, DOI: 10.1080/00036811.2013.848271.
- 52- **M. Bounkhel**, *Subdifferential properties of minimal time functions associated with set-valued mappings with closed convex graphs in Hausdorff topological vector spaces*, Journal of functions spaces and Applications, 2013. <http://www.hindawi.com/journals/jfsa/aip/707603/>

- 53- **M. Bounkhel**, *Existence of solutions for differential inclusions with nonlinear growth conditions in Banach spaces*, The Scientific World Journal 2013, Article number 591620.
- 54- **M. Bounkhel** and C. Li, *Frechet and proximal regularities of perturbed distance functions at points in the target set in Banach spaces*, JNCA, Vol. 15, No. 6, 1331-1347, 2014.
- 55- **M. Bounkhel** and R. Hedjar, *Real-time obstacle avoidance for a swarm of autonomous mobile robots*, International Journal of Advanced Robotic Systems, April 2014, 11:67. doi: 10.5772/58478.
- 56- **M. Bounkhel**, *On subdifferentials of a minimal time function at points outside the target in Hausdorff topological vector spaces*, Journal of Convex Analysis, Vol. 22, No. 2, 2015.
- 57- **M. Bounkhel** and C. Li, *Subdifferential regularities of perturbed distance functions outside the target set in Banach spaces*, Nonlinear Analysis, 173-188, 2014.
- 58- **M. Bounkhel** and L. Tadj, *Optimal harvesting effort for nonlinear predictive control model for a single species fishery*, Mathematical Problems in Engineering, Volume 2015, Article ID 367593, 8 pages. February 2015.
- 59- **M. Bounkhel**, *Iterative Methods for nonconvex equilibrium problems in uniformly convex and uniformly smooth Banach spaces*, Journal of functions spaces, Volume 2015, Article ID 346830, 18 pages. March 2015.
- 60- **M. Bounkhel**, *Generalized projections on closed nonconvex sets in uniformly convex and uniformly smooth Banach spaces*, Journal of functions spaces, Volume 2015, Article ID 478437, 18 pages.
- 61- **M. Bounkhel**, *Existence of Equilibria and fixed points of set-valued mappings on epi-Lipschitz sets with weak tangential conditions*, Journal of functions spaces, Volume 2016, Article ID 5671729, 9 pages.
- 62- **M. Bounkhel**, *Mathematical modeling and numerical simulations of the motion of nanoparticles in straight tube*, Advances in Mechanical Engineering, August 9, 2016, Vol. 8(8), 1-6, doi:10.1177/1687814016656965.
- 63- **M. Bounkhel**, *Calculus rules for V-proximal subdifferentials in smooth Banach spaces*, Journal of functions spaces, Volume 2016, Article ID 1917387, 18 pages.

PART THREE

1) Grants, Scholarships;

a) Scholarship from Algerian Ministry of Higher Education and French Ministry of Higher Education, 01/09/1994-30/06/1995. (to prepare Master Degree)

b) Scholarship from Algerian Ministry of Higher Education and French Ministry of Higher Education 01/09/1995-30/06/1998. (to prepare Ph.D.).

c) Research Projects as Principal investigator:

1. Grant No. P115, 01/10/2010- 30/09/2012. "[Modeling and simulation for all possible situations of crowd flows of pilgrims in the Holy Mosque in Makkah](#)". Centre of Research Excellence in Hajj & Umrah (HajjCore), Hajj Research Institute, Umm Al-Qura University, Makkah Mukarramah, Saudi Arabia.
2. Research group project No. RGP-VPP-024, King Saud University 2011-Present (2016).
3. Research project: No. College of Science – Research center project No (Math/2008/37).
4. Research project: No. College of Science-Research center project No (Math/2009/16).

2) Associate Editor to the following international journals:

- Journal of Function Spaces and Applications.
- The Scientific World Journal

3) Employment History:

15/08/2001 – Present. King Saud University, College of Science, Department of Maths., Riyadh, Saudi Arabia.

01/09/1999-15/08/2001. Assistant professor, Center for Mathematical Modeling (CMM), Universidad de Chile, Santiago, Chile.

01/09/1998-01/09/1999. Tenure-track position, University of Montpellier 2, College of Science, Depart. of Maths, Montpellier, France.

01/09/1995-01/09/1998. Lecturer Position, University of Montpellier 2, College of Science, Depart. of Maths, Montpellier, France.

Participation in Conferences and Other Activities:

1) Participation in conferences:

- 1- Conferences M.O.D.E., Poitiers University, Poitiers, France, March 18-21, 1998., *Tangential regularity of functions and set-valued mappings*.
- 2- The 9th Belgian-French-German Conference on Optimization, Facultés Universitaires Notre-Dame de la paix Namur, Belgique, September 7-11, 1998. *Tangential regularity of set-valued mappings*.
- 3- The 10th Italian-French-German Conference on Optimization, University of Montpellier II, Montpellier, France. September 4-8, 2000. *Tangential regularity of sets in non smooth analysis*.
- 4- The 6th meeting of Saudi Association for Mathematical Sciences, King Saud University, college of science, Riyadh, Saudi Arabia, April 9-10, 2002. *First Order Perturbed Nonconvex Sweeping Process with delay*.
- 5- The 7th meeting of Saudi Association for Mathematical Sciences, Prince Sultan University, Riyadh, Saudi Arabia, 2004. *Optimal control of a Production System with Inventory Level Dependent Demand*.
- 6- Applied Mathematics Day (AMD), King Fahd University (KFUPM), Dhahran, Saudi Arabia, April 9, 2006. *An existence result for a New Variant of the Nonconvex Sweeping Process*.
- 7- First school on differential equations (EDO et EDA), Tipaza, Algérie. May 13-18, 2006. *Nonconvex Differential Inclusions* **(Invited Speaker)**.
- 8- Workshop on Mathematical Modeling of Dynamical Systems, King Abdulaziz City of Science & Technology (KACSST), Riyadh, Saudi Arabia, April 29, 2007. Mode of Participation: **(Chairman of the organizing committee)**.
- 9- The sixth days of maths at UAE, The petroleum institute, Abu Dhabi, UAE, April 25, 2008, *Existence and uniqueness of some variants of nonconvex sweeping processes*.
- 10- *Third school on differential equations (EDO et EDA)*, Université Abdelhamid Ibn Badis, Mostaganem, Algérie. May 24-29, 2008. *Nonconvex Differential Inclusions and Nonconvex Variational Inequalities* **(Invited Speaker)**.
- 11- International Conference on Mathematics and Modeling, Muscat, Oman, February 24-26-2009, *Applications of Nonsmooth Analysis to Nonconvex Differential Inclusions, Quasi-Variational Inequalities (QVI), Differential QVI, and Economic Problems*.
- 12- First Annual Maths Days of King Saud University (December 16-17, 2009), Dept. of Maths., Mode of Participation: **(Chairman of the organizing committee)**.
- 13- The 8th meeting of Saudi Association for Mathematical Sciences, Al-Imam University, Riyadh, Saudi Arabia, March 23-24, 2011. *Modeling and simulation for all possible situations of crowd flows of pilgrims in the Holy Mosque in Makkah*. **(Invited Speaker)**
- 14- IFORS2011, 10-15th July, 2011, Melbourne, Australia. *Proximal Analysis in reflexive smooth Banach spaces*. **(Invited Speaker)**.
- 15- NAOTA, International Conference on: Numerical Analysis and Optimization-Theory and Applications, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia, Dcember 18-19, 2011, *Proximal Analysis in Banach spaces and applications to minimization problems* **(Invited Speaker)**.
- 16- SMD2012, Second Maths Days of King Saud University 2012, 14-15 March 2012, King Saud University, Riyadh, Saudi Arabia, **(Chairman of the organizing committee)**.
- 17- Second Research Day of PSU 2012, 18 March 2012, Prince Sultan University, Riyadh, Saudi Arabia, *Mathematical Modeling and Numerical Simulations of: 1-Crowd flows at the holly mosque in Makkah, 2-Obstacle Avoidance of autonomous Mobile robots, and 3-Motion of nanoparticles in straight tubes*. **(Invited Speaker)**.
- 18- Jordan Theory, Analysis and Related Topics 2012, April 30-May 4, 2012, Hong Kong. *Implicit Differential Inclusions in reflexive smooth Banach spaces* **(Invited Speaker)**.
- 19- CMCGS 2014, 3rd Annual International Conference on Computational Mathematics, Computational Geometry & Statistics. 03-04/02/2014, Singapore, *Frechet and proximal Regularities of perturbed distance functions at points in the target set in Banach spaces* **(Invited Speaker)**.
- 20- IFORS2014, 20th Conference of the international Federation of Operation Research Societies, Barcelona 2014, 13th-18th July 2014. *Iterative Methods for nonconvex equilibrium problems in Banach spaces* **(Invited Speaker)**.

- 21- 2nd International Workshop on Maths. and Comp. Science, 01-02/12/2014, Tiaret, Algeria, *Nonsmooth Analysis and its Applications to two real life problems: 1-Crowd flows at the holly mosque in Makkah, 2-Obstacle avoidance of autonomous Mobile robots* **(Invited Speaker)**.
- 22- I Brazilian Congress of Young Researchers in Pure and Applied Mathematics, 10-12/12/2014, Sao Paulo, Brazil, Directional Lipschitzness of minimal time functions in Hausdorff topological vector spaces.
- 23- The 9th International Conference on Nonlinear Analysis and Convex Analysis (NACA2015)-Chiang Rai, Thailand, January 21-25 2015, *Iterative schemes for V-prox-regular equilibrium problems in Banach spaces* **(Invited Speaker)**.
- 24- SIAM Conference on Applications of Dynamical Systems (DS15) in Snowbird, Utah (USA), May 17-21, 2015, *Moreau Sweeping Processes in Banach spaces* **(Invited Speaker)**.

- Supervision of graduate students:

1. **Tahar Haddad, Ph.D.**, Abbas Farhat University, Setif, Algeria, Title: Differential inclusions and Dynamic variational inequalities. Defended on July 2007.
2. **Rabab Al-yusuf, Ph.D.**, King Saud University, Riyadh, Title: Proximal Analysis in Banach Spaces, Defended 8th Match 2009.
3. **Bushra Ridha Al-Sinan, Ph.D.**, King Saud University, Riyadh, Title: Nonconvex Differential Inclusions in Banach spaces. Presentation expected in 25/11/2011.
4. **Bushra Ridha Al-Sinan, Master thesis**, King Saud University, Riyadh, Title: Applications of Nonsmooth Analysis to Nonconvex Variational Inequalities and to Nonconvex Differential Inclusions. Defended in September 2005.
5. **Mariam Al-Touleb, Master thesis**, King Saud University, Riyadh, Title: Applications of Nonsmooth Analysis to Nonconvex Equilibrium Problems. Defended in June 2007.
6. **Najah Mukbil Al-Shammari, Master thesis**, Hael University, Hael, Title: Nonconvex Differential Inclusions in Hilbert and Banach spaces. Defended on July 2012.
7. **Nada al-Farra, Master thesis**, King Saud University, Riyadh, Title: Applications of Optimal Control Theory, Currency Trading (Forex), Defended on July 2010.

- Theses examined:

1. **Mustapha Yarou**, “Problèmes d’évolutions gouvernés par le processus de rafle non convexe”, **Ph.D.**, Constantine University, Algeria, Defended in 2003.
2. **Dalila Laouir-Azzam**, “Contribution a l’étude de problèmes d’évolutions du second ordre”, **Ph.D.**, Constantine University, Algeria, Defended in 2003.
3. **Haifa M. Al-Jebreen**, “Quasi-Linear Maps between Banach spaces and their applications”, **Ph.D.**, King Saud University, Riyadh, Saudi Arabia, Defended in 2004.
4. **Jumana Hussein Al-Safar**, “Bilinear and Sesquilinear Forms on Jordan Operator Algebras”, **Ph.D.**, King Saud University, Riyadh, Saudi Arabia, Defended in 2007.
5. **Adel Fahd Al-Rashidi**, “Optimal Control of Production Inventory Systems with Deteriorating Items”, **Master Thesis**, King Saud University, Riyadh, Saudi Arabia, Defended in 2005.
6. **Aisha Al-Omeir**, **Master Thesis**, King Faissal University, Saudi Arabia, Defended in 2009.

7. **Tawfik Metwalii, PhD Thesis**, Al-Mansoura University, Al-Mansoura, Egypt, "Optimal of a rigid body motion without angular velocity measurements", Defended in 2011.

PART FOUR: TAUGHT COURSES

- **Math 555: Mathematical Programming,**
- **Math 523: Partial Differential Equations (II)**
- **Math 101: Introduction to Differential Calculus**
- **Math 104: General Mathematic (II)**
- **CSC 206: Introductory Programming with Visual QBasic**
- **Math 600: Master's Supervision**
- **Math 700: PhD's Supervision**
- **Math 580: Measure Theory (I)**
- **Math 105: Differential Calculus**
- **Math 681: Random Differential Equations**
- **Math 684: Distribution Theory**
- **Math 690: Advanced Topics in mathematics**
- **Math 687: Geometric Theory of functions**
- **Math 589: Selected Topics in Analysis**
- **Math 581: Functional Analysis (I)**
- **Math 583: Topological Vector Spaces**
- **Math 201: Differential and Integral Calculus**
- **Math 103: General Mathematic (I)**
- **Math 522: Partial Differential Equations (I)**
- **Math 589: Selected Topics in Analysis: (Nonsmooth Analysis)**
- **Math 690: Advanced Topics in mathematics: (Differential inclusions)**