CURRICULUM VITAE

Mounir Zili
Full Professor
Department of University Studies, Military Academy, Tunisia
Research Laboratory LR18ES17 – University of Monastir

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https://www.scopus.com/authid/detail.uri?authorId=14830778600

https://www.researchgate.net/profile/Mounir_Zili2/research

https://scholar.google.fr/citations?user=i5Yfb38AAAAJ&hl=fr

President of the scientific Association: Monastir Living Lab
https://www.facebook.com/monastir.livinglab.73

PERSONAL INFORMATION

Postal Address: BP No 11 Monastir Gare, 5079, Monastir, Tunisia
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RESEARCH INTERESTS

- Stochastic processes. Gaussian and Self Similar processes. Stochastic Calculus.
- Stochastic partial differential equations
- Stochastic Differential Equations : Existence and Uniqueness of Solutions, Numerical Simulation of the Solutions Sample Paths.
- Parameters estimation
- Partial Differential Equations : Asymptotic Expansion of the Solutions by Probabilistic Methods.

POSITIONS HELD And RESPONSABILITIES ASSUMED

➢ **Full Professor in Mathematics: September 29, 2008 - Present**

- Since December 1st 2022 in the Department of University Studies, Military Academy Foundok Jedid, Tunisia
- Between December 1st, 2012 and December 1st 2022: in the Department of Mathematics, at the Faculty of Sciences of Monastir-Tunisia.
- Between September 29, 2008 and November 30, 2012 : in the Department of Mathematics, at the Preparatory School to the Military Academies-Sousse-Tunisia.

➢ **Member of the scientific council** of the faculty of sciences of Monastir: December 2017-December 2022.

➢ **Head of the Research Master's Commission of Maths** at the faculty of sciences of Monastir: January 2018-January 2021.

- **Chair of a Research Unit: 2004 - 2012**

  Chair of the research unit « Applied Mathematics & Mathematical Physics » UR04DN04
  At the Preparatory School to the Military Academies-Sousse-Tunisia

- **Chair of a Department: November 11, 2008 – December 1st, 2012**

  Chair of the department of Mathematics at the Preparatory School to the Military Academies-Sousse-Tunisia.

- **Member of the Advisory Committee for Military Higher Education :** 2009 and 2010.

- **Associate Professor : February 2, 2002- September 29, 2008**

  Associate professor in the Department of Mathematics, at the Preparatory School to the Military Academies-Sousse-Tunisia.

- **Assistant Professor : September 26, 1997 – February 1st, 2002**

  Asssistant professor in the Department of Mathematics, at the Preparatory School to the Military Academies-Sousse-Tunisia.

- **Part-time assistant professor**

  - **September, 1997- June, 2002** : At the Faculty of Sciences of Monastir-Tunisia

  - **September 1997- June 1998** and September, **2005- June, 2006** : At the Military Academy of Foundok Jedid-Tunisia

- **Part-Time Lecturer :**

  - **September, 1995- June, 1997**: At the University Paris-Est , Marne La-Vallée, **France**

  - **September, 1993- June, 1997**: At the University Paris XII, Créteil,, **France**

ACADEMIC ACHIEVEMENT

- **Ph.D - University Paris VI « Pierre & Marie Curie » France (1996)** Dissertation :Fundamental Solutions of Parabolic Partial Differential Equations with nonsmooth coefficients : Explicit Expansion and Study of the Associated Stochastic Differential Equations.

- **MSc. Degree (D.E.A.- Diplôme d'Etudes Approfondies) - University Paris VI « Pierre & Marie Curie » France (1992)** Dissertation : Stochastic Analysis and Modeling.

- **BSc Degree in Mathematics - Faculty of Sciences of Monastir-(1990) Tunisia**

AWARD

- Best Lecture Award: IEEE Region 8 - EUROCON 2007 The International Conference on Computer as a tool. September 9-12, 2007, Warsaw, Poland.

BOOKS

- Benoîte de Saporta and **M. Zili**, Martingales et Mathématiques Financières en Temps Discret. ISTE Editions, Septembre, 2022. ISBN Papier : 9781784058685, ISBN E-Book : 781784068684
- Benoîte de Saporta and **M. Zili**, Martingales and Financial Mathematics in Discrete Time. ISTE Wiley, January 2, 2022. ISBN: 978-1-786-30669-2
- Y. Mishura and **M. Zili**. Stochastic Analysis of Mixed Fractional Gaussian processes. ISTE Press-Elsevier. 1st May 2018. ISBN : 978-1-785- 482458
- **M. Zili** and D. Filatova. Stochastic Differential Equations and Processes, **Springer Proceedings in Mathematics 7**, Springer-Verlag Berlin Heidelberg 2011. ISBN: 978-3642223679
- **M. Zili**. Mathématiques-Géométrie-Arithmétique-Statistiques-Probabilités: Preparation for the Tunisian high-school diploma. Edited by **Daar El Maaref**-Tunisia, in 2007. ISBN : 9973-41-521-3
- **M. Zili**. Mathématiques- Analyse: Preparation for the Tunisian high-school diploma. Edited by **Daar El Maaref** –Tunisia, in 2002. ISBN : 9973-41-520-5

EDITOR

- F. Shokrollahi, **M. Zili** & D. Ahmadian,, Stochastic Calculus for Financial Mathematics

  Frontiers, To appear in 2024

RESEARCH ARTICLES:

1. **M. Zili** and E. Zougar. Mixed Stochastic Heat Equation with fractional Laplacian and gradient perturbation. Fractional Calculus and Applied Analysis. (Q1 journal). V. 25, No1, 2022. https://doi.org/10.1007/s13540-022-00037-z
2. **M. Zili** and E. Zougar. Stochastic heat equation with piecewise constant coefficients and generalized fractional type-noise. Theor. Probability and Math. Statist. **104** (2021), 123-144. (Q3 Journal)
3. Y. Mishura, K. Ralchenko, **M. Zili** and E. Zougar Fractional stochastic heat equation with piecewise constant coefficients. Stochastics and Dynamics. Vol. 21, No. 01, 2150002 (2021) (Q2 Journal)
4. Y. Mishura, K. Ralchenko and **M. Zili**. On mild and weak solutions for stochastic heat equations with piecewise-constant conductivity. Statistics and Probability Letters. 159 (2020) 108682.(Q2 Journal)
5. **M. Zili** and E. Zougar. Spatial quadratic variations for the solution to a stochastic partial differential equation with elliptic divergence form operator. Modern Stochastics: Theory and Applications, 2019, Vol. 6, No. 3, 345-375.(Q3 Journal)
6. **M. Zili** and E. Zougar. Exact variations for stochastic heat equations with piecewise constant coefficients and application to parameter estimation. Theory of Probability and Mathematical Statistics, No 1 (100) 2019, p. 75-101. (Q3 Journal)
7. **M. Zili**, E. Zougar One-dimensional stochastic heat equation with discontinuous conductance. *Applicable Analyis,: An International Journal*. V. 98, Isssue 12, 2019. (Q2 Journal)

8. **M. Zili**. On the Generalized Fractional Brownian Motion. Mathematical Models and Computer Simulation. V. 10, No 6, pp.1-11, 2018.(Q3 Journal)

9. M. Khalil, C. Tudor, **M. Zili** Spatial variation for the solution to the stochastic linear wave equation driven by additive space-time white noise. Stochastic and dynamics. Vo 18, No 5, 1850036, 2018. (Q2 Journal)

10. M. Bel Hadj Khlifa, Yu. Mishura, K. Ralchenko, G. Shevchenko, **M. Zili** *Stochastic differential equations and statistical estimators with generalized stochastic volatility*. Theory of Probability and Mathematical Statistics, Teor. Imovir. Mat. Stat. No. 96, 2017, pp. 8–20. (Q3 Journal)

11. **M. Zili**. Generalized fractional Brownian motion. *Modern Stochastics: Theory and Applications*. (4) 2017, pp. 15-24. (Q3 Journal)

12. M. B. Hadj Khlifa, Y. Mishura, K. Ralchenko, **M. Zili** Drift parameter estimation in stochastic differential equation with multiplicative stochastic volatility. *Modern Stochastics: Theory and Applications*. 3 (2016) 269–285. (Q3 Journal)

13. M. Khalil, C. Tudor, **M. Zili**. On the Lamperti transform of the fractional Brownian sheet. *Fractional Calculus and Applied Analysis.* Volume 19, Issue 6, (Dec 2016) (Q1 Journal)

14. C. Tudor, **M. Zili**. SPDE with generalized drift and fractional-type noise. *Nonlinear Differential Equations and Applications* NoDEA 23(5) · October 2016. (Q1 Journal)

15. M. B. Hadj Khlifa, Y. Mishura, **M. Zili**. Asymptotic properties of non-standard drift parameter estimators in the models involving fractional Brownian motion. *Theory of Probability and Mathematical Statistics*, No 94, 2016, pp. 74-85. (Q3 Journal)

16. **M. Zili.** Mixed Sub-fractional-White Heat Equation. *Journal of Numerical Mathematics and Stochastics*, 8 (1); 17-34, 2016.

17. Z.Q. Chen, **M. Zili**. One-dimensional heat equation with discontinuous conductance. *Science China Mathematics* . January 2015, Volume 58, Issue 1, pp 97-108. (Q1 Journal)

18. C. Elnouty, **M. Zili**. On the Sub-Mixed Fractional Brownian motion. *Appl. Math. J. Chinese Univ*. 2015, 30(1).

19. C. Tudor, **M. Zili**. Covariance measure and stochastic heat equation with fractional noise. *Fractional Calculus and Applied Analysis* September 2014, Volume 17, Issue 3, pp 807-826. (Q1 Journal)

20. **M. Zili**. Mixed Sub-Fractional Brownian Motion. *Random Operators and Stochastic Equations*. Volume 22..Issue 3. Pages 163–178 (2014).. (Q3 Journal)

21. **M. Zili**. An optimal series expansion of sub-mixed fractional Brownian motion. Journal of Numerical Mathematics and Stochastics. Journal of Numerical Mathematics and Stochastics, 5 (1): 93-105, (2013).

22. **M. Zili**. Preface. *Random Operators and Stochastic Equations* Volume 19, Issue 2, pages 109-110 (2011). (Q3 Journal)

23. D. Filatova, M. Grzywaczewski, **M. Zili**. Stochastic Modeling in the Task of Biochemical Oxygen Demand Monitoring. Proceedings. Mathmod 09. Vienna Argesim-Publishing house, Viennan, (2009) ISBN: 978-3-901608-34-6.

24. D. Filatova, M. Grzywaczewski, E. Shybanova, **M. Zili**. Parameter Estimation in Stochastic Differential Equation Driven by Fractional Brownian Motion. Eurocon, (2007). The International Conference on "Computer as a tool", September (2007), pages: 2316-2322, Warsaw, ISBN: 978-1-4244-0813-9.

25. **M. Zili**. On the mixed fractional Brownian motion. *Journal of Applied Mathematics and Stochastic Analysis*, vol. (2006), Article ID 32435, 9 pages.

26. D. Filatova, M. Grzywaczewski, **M. Zili**. Portfolio Optimization Problem of Mertons' Market Driven by a Fractional Brownian Motion. *Macromodels 2006, Zakopane (2006)*, pp. 181-197.

27. **M. Zili.** Solutions Approximation for Stochastic Differential Equations. *Glob. J. Pure Appl. Math.*, 2, No. 3, 225-236 (2006).

28. **M. Zili**. Approximation of solutions of stochastic differential equations. *International Journal of differential Equations and Applications*; V. 8, No. 3,(2003), p. 271-287.

29. **M. Zili**. Fundamental solution of a parabolic partial differential equation with piecewise constant coefficients and admitting a generalized drift.International *Journal of Applied Mathematics*; V2, N 9, (2000), p. 1073-1110.

30. **M. Zili**. Construction d'une solution fondamentale d'une équation aux dérivées partielles à coefficients constants par morceaux. *Bulletin Des Sciences Mathématiques*; V. 123, N 2, Février, (1999), p. 115-155. (Q1 Journal)

31. **M. Zili**. Sur l'unicité forte des solutions d'une équation différentielle stochastique. *Probability And Mathematical Statistics*; V.18, Fasc.2, 1998, p. 335-350. (Q2 Journal)

32. **M. Zili**. Sur l'unicité forte des solutions d'une équation différentielle stochastique avec drift singulier dependant du temps en dimension un. *Stochastics and Stochastics Reports*. N 1-2, p.21-29, 62 (1997). (Q2 Journal)

33. **M. Zili.** An Asymptotic Expansion in Short Times of a Partial Differential Equation Solution and Physical Applications}. *Proceedings of the 15th IMACS World Congress on Scientific Computation, Modelling and Applied Mathematics*; V.1, p. 177-182, Berlin (1997).

34. **M. Zili**. Développement asymptotique en temps petits de la solution d'une équation aux dérivées partielles de type parabolique généralisée au sens des distributions-mesures. *Comptes Rendues de l'Académie des Sciences de Paris*; t.321, Série I, p. 1049-1052, (1995).(Q1 Journal)

SUPERVISER OF PHD THESES: (5)

1. Soumaya Idriss, Limit Laws and Applications of Stochastic Algorithms to Generalized Urn Models. Thesis supervised by **Mounir Zili** and defended on September 24, 2021.

2. Eya Zougar. Stochastic Partial Differential Equations with piecewise constant coefficients. Phd Thesis supervised by **Mounir Zili** and defended on October 3, 2020.

3. Salem Lamine. Study of certain Multi-self-similar processes. Phd Thesis co-supervised by Loic Chaumont and **Mounir Zili.** Defended on December 2019

4. Meriem Bel Hadj Khlifa. Parameter estimation in the models involving stochastic volatility and in the fractional models represented by stochastic differential equations. Phd Thesis co-supervised by Yuliya Mishura and **Mounir Zili**. Defended on May 10, 2018.

5. Marwa Khalil. Variations of self-similar processes. Phd thesis co-supervised by Ciprian Tudor and **Mounir Zili.** Defended on December 5, 2017.

REVIEWER OF HABILITATION AND PHD THESES

✓ ***Habilitation Thesis***

- Reviewer of the Habilitation thesis of Dr Raouf Fakhfakh. Defended on May 29, 2021 at the university of Sfax.

✓ ***Phd Thesis***

- Reviewer of the Phd Thesis of Dr Zineb Boudebane, Defended on January 27, 2024 at the university of Sousse.
- Reviewer of the Phd Thesis of Dr Souad Chennaf, Defended on July 20, 2023 at the universit of Tunis El Manar.
- Reviewer of the Phd Thesis of Dr Fatma Ktari, Defended on June 24, 2022 at the university of Sfax.
- Reviewer of the Phd thesis of Dr Rim Nasfi. Defended on January 15, 2022 at the university of Tunis El Manar..
- Reviewer of the Phd thesis of Dr Helmi Zaatra. Defended on December 28, 2021 at the university of Gabès.
- Reviewer of the Phd thesis of Dr Imed Bouzida. Defended on April 19, 2019 at the university of Sfax.

PRESIDENT AND MEMBER OF THESES JURIES

✓ ***Habilitation Thesis***

- Member of the jury of the Habilitation Thesis of Dr Hafedh Reguigui. Defended on June 20, 2018 at the university of Sousse.

✓ ***Phd Thesis***

- Jury president of the Phd Thesis of Dr Fatma Ben Khader. Defended on November 29, 2021 at the universtity of Monastir.
- Jury president of the Phd thesis of Dr Inès Jlassi. Defended on Janaury 24, 2018 at the university of Monastir.
- Jury examiner of the Phd theses of Dr Sana Chaouech (December 24, 2022), Dr Samia Elji (October 14, 2022), Dr Imen Ben Abdelwahed (May 26, 2017), Dr Noureddine Jilani Ben Naouara (November 30, 2015) and Dr Lamia Ben Othman (December 22, 2014), University of Monastir.

✓ ***Master’s Thesis***

- Jury president of the Master's theses of Khouloud Hassine (July 2020), Soulef Nasri (February 21, 2018), Zained Smida (January 4, 2018), Abdelkrim Ouni (December 14, 2015), Fatma Ben Brahim (December 15, 2014) and Mossaâb Ayari (November 29, 2014) at the university of Monastir.
- Jury member of the Master's theses of Nesrine Chebli (November 27, 2020- University of Sousse), Sana Salah (December 29, 2018-University of Monastir), Raja Ben Hajria (December 6, 2014- University of

Monastir), Salem Lamine (December 13, 2013- University of Monastir), Ameni Mabrouk (December 5, 2013- University of Monastir) and Nida Mehdoui (November 22, 2013- University of Monastir) .

MEMBER OF AD HOC COMMISSIONS FOR HABILITATION THESES SPECIAL EVALUATION

- Member of an Ad hoc commission for the evaluation of the habilitation thesis of Dr Rachid Assel : January 2022
- Member of an Ad hoc commission for the evaluation of the habilitation thesis of Dr Salah Khardani : January 2020

CAPACITIES and ORGANIZATIONAL SKILLS

- **Organizer :** First Scientific Day on Innovative Waste Management for Local Development. GIDSDL2021. October 26, 2021, Monastir, Tunisia.
- **Organizer:** Scientific Days on Stochastic and Fractional Calculus (SFC 2021) , April 4-5, 2021, Monastir, Tunisia.
- **Organizer:** Scientific Day on Stochastic Processes and Applications (SPA2018), May 11, 2018, Monastir, Tunisia.
- **Organization committee member:** CIMPA School and Conference : Levy processes and self similarity. 28 Octobber - 9 November 2013, Tunis.
- **Organiser :** Seminars of the research group « *Stochastic Analysis* » 2012 – 2014. Faculty of sciences of Monastir-Tunisia.
- **Chair of the organization committee *: International Conference* SAAP 2010, « S**tochastic **A**nalysis and **A**pplied **P**robability »; 7 − 9 October, 2010, Yasmine-Hammamet, Tunisia.
- **Chair of the organization committee : International Conference URASCM 2007**, « *Stochastic And Potential Analysis* » 26−29 March, 2007, Hammamet, Tunisia.
- **Organiser :** The First Day on Stochastic Analysis, 26 June, 2006, Monastir, Tunisia.
- **Organiser:** Seminars of the research unit UR04DN: 2004 – 2007. Faculty of sciences of Monastir and Preparatory School for the Military Academies-Sousse, Tunisia.

REVIEWER

- Statistics and Probability Letters
- Modern Stochastics: Theory and Applications
- Mathematical reviews
- Statistical Inference for Stochastic Processes
- Bulletin of the Malaysian Mathematical Sciences Society
- Communications In Statistics- Theory and Methods
- Filomat
- Journal of Numerical Mathematics and Stochastics
- Journal of Computational and Applied Mathematics
- Communications in Statistics - Simulation and Computation

SCIENTIFIC COMMITTEE MEMBER

- **CISEM 2022**, International Symposium on Statistics and Econometrics, May 13-15, 2022 Mahdia, Tunisia. https://cisem2022.com/les-comites/
- **CISEM 2020,** International Symposium on Statistics and Econometrics in the Maghreb, May 29-31, 2020 Rabat Morocco.

- **CISEM 2019**. International Symposium on Statistics and Econometrics. May 3-5, 2019. Mahdia, Tunisia. http://cisem2019.asc-fsegma.com/le-colloque/comites/
- Research School "**CIMPA ASA 2019**" Algeria. Stochastic Analysis and Applications. Saida, **Algeria**. 01-09 March 2019. https://univ-saida.dz/cimpa2019/fr/comites.php
- The first International Workshop on Stochastic Analysis and its Applications. May 28-30, 2014 Saida, **Algeria**
- ATIM 2013 ; The Algerian-Turkish International Days on Mathematics 2013 : 12-14 September 2013, Fatih University, Istanbul, **Turkey**.

CONFERENCES & LECTURES

1. **Invited speaker** at the conference "New Trends in Analysis and Probability. Hammamet,-Tunisia, September 23-26, 2019". https://ntap2019.sciencesconf.org/resource/page/id/2

2. Sur des équations aux dérivées partielles à coefficients constants par morceaux. Institut Elie Cartan (IECL). Laboratoire de recherche en mathématiques de l'université de Lorraine**, France**. September 14, 2017.

3. Mixed Sub-Fractional Brownian Motion. Lorentz Center Workshop "Fractality and fractionality". May 17-20, 2016. Leiden, **Netherlands.**

4. Sub-Mixed fractional Brownian motion. The Algerian-Turkish International Days On Mathematics. 12-14 September 2013, Fatih University, **Istanbul, Turkey.**

5. On the Mixed and Sub-Mixed Fractional Brownian Motions. Probability Seminar of the university of **Washington-USA.** Monday, November 28, 2011.

6. Stochastic Modeling in the Task of Biochemical Oxygen Demand Monitoring. MATHMOD VIENNA 09. 6th Vienna Conference on Mathematical Modelling. February 11-13, 2009. **Vienna** University of Technology, **Austria**.

7. Parameter Estimation in Stochastic Differential Equation Driven by Fractional Brownian Motion. IEEE Region 8 Eurocon 2007. The International Conference on Computer as a tool, September 9-12, 2007. **Warsaw, Poland**.

8. On a successive approximation of the solution for a stochastic differential equation. International Congress of Mathematicians; **Madrid-Spain**, August 22-30, 2006.

9. Approximation of solutions of stochastic differential equations. 14th Colloquium of the Tunisian Mathematical Society. 20-23 March, 2006, **Hammamet, Tunisia**.

10. Conference about the Scientific Research in the Military Environment : The Reality and the Horizons. C.N.T.- **Tunis-Tunisia**. 30 June, 2005.

11. Fundamental Solution of a Parabolic Partial Differential Equation with Piecewise Constant Coefficients. 17th IMACS World Congress on Scientific Computation, Applied Mathematics and Simulation**; Paris, France**; July 11-15, 2005.

12. Construction of a fundamental solution of a partial differential equation with piecewise constant coefficients. Ninth International Colloquium on Differential Equations ; **Plovdiv, Bulgaria**, August 18-23, 1998.

13. An asymptotic expansion in short times of a partial differential equation solution and physical applications. 15th IMACS World Congress on Scientific Computation, Modelling and Applied Mathematics. August 1997. **Berlin, Germany**.

14. Calcul asymptotique en temps petits de la solution d'une e.d.p. Journées Simulation Numérique, Matière condensé et Désordre, 5-6 Juin 1997 Jussieu, **Paris-France**.

15. Développement asymptotique en temps petits de la solution d'une équation aux dérivées partielles de type parabolique généralisée au sens des distributions-mesures. Opérateurs Différentiels et Physique Mathématique; 19-22 June, 1995. **Coimbra, Portugal.**

16. Résolution stochastique d'un système d'équations de diffusion sur machine parallèle. Forum du calcul numérique; 16-17 Juin 1993, Unesco **Paris-France**.

SUPERVISER OF MASTER'S THESES:

Eya Zougar (defended on December 1, 2016), Meriem Ben Haj Khalifa (defended on December 4, 2014), Marwa Khalil (defended on February 22, 2014), Khaled Khachnaoui (defended on October 26, 2013), Dalila Amri (defended on October 26, 2013), Rim Achour (defended on December 2013).

EMPLOYABILITY STUDY

1. **Workshops on Employability: Tunis. 1-2 March 2014**, Organized by the British Council and the Ministry of Higher Education, Scientific Research and Information and Communication Technologies
2. **UK Study Tour-MENA : Regional employability: Midlands and Wales. 3-9 November 2013.** Organized by the British Council and the Ministry of Higher Education, Scientific Research and Information and Communication Technologies

DUPLICATE LECTURE NOTE

- Espaces Métriques. For the students in the second year university degree. Edited in 2004 by the Preparatory school to the Military Academies-Sousse-Tunisia.

COMPETENCIES and TECHNICAL SKILLS

- **Computer Knowledge** : Matlab, Fortran, Latex, Word, Simulation of Stochastic Differential Equations Solutions.

- **Languages** : Arabic (Native language), French (read, written and spoken- good) and English (read, written and spoken- good)