

CURRICULUM VITAE

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EDUCATION

2014 Ph.D., Mathematics, University of Tunis El Manar, under the direction of Najoua Gamara (University of Tunis El Manar) and Lotfi Hermi (University of Arizona); Dissertation: *On the Problem of Queen Dido for a Wedge-Like Membrane and a Compact Riemannian Manifold with a Lower Ricci Curvature Bound.*

2008 M.S., Pure Mathematics, University of Tunis El Manar, under the direction of Najoua Gamara ; Thesis: *The Yamabe Problem on Riemannian Manifolds.*

2004 B.S., Mathematics, Faculty of Sciences of Bizerte, Tunisia

POSTDOCTORAL EXPERIENCE

Spring 2016 J. William Fulbright Foreign Scholarship, Georgia Institute of Technology, USA

Fall 2015 J. William Fulbright Foreign Scholarship, University of Arizona, USA

AREAS OF INTEREST

Analysis, Spectral Analysis, differential geometry, Mathematical Physics, Isoperimetric Inequalities, Partial Differential Equations, Mathematics and Education.

EMPLOYMENT

2012–2014 Contract teacher of Analysis (“Introduction to Proof and Advanced Calculus”), Preparatory Institute for Engineering Studies of Tunis.

2008–2012 Contract teacher of Algebra (“Introduction to Matrix Analysis and Abstract Algebra”), Preparatory Institute for Engineering Studies of Tunis.

2017–2025 Assistant Professor (Calculus II, III, Linear Algebra, Ordinary Differential Equations, Partial Differential Equations, Vector Analysis, Functional Analysis, Dynamics).

PUBLICATIONS

1. Zaghdani, A., Hasnaoui, A., & Sayari, S. (2026). Analysis of a weak Galerkin mixed formulation for Maxwell’s equations. *Kragujevac Journal of Mathematics*, 50(3), 387–401.
2. Hatamleh, R., Odat, N., Abujabal, H. A., Khattak, A. M., Abd El-latif, A. M., et al. (2025). Fermatean double-valued neutrosophic soft topological spaces. *European Journal of Pure and Applied Mathematics*, 18(3), 6483–6483.
3. Hatamleh, R., Alqawaqneh, H., Odat, N. O., Al-Husban, A., Khattak, A. M., et al. (2025). A new approach to vague soft rough topological spaces. *European Journal of Pure and Applied Mathematics*, 18(3), 6456–6456.
4. Aldawood, M., Abd El-latif, A. M., Aldwoah, K., Azzam, A. E., Hasnaoui, A., et al. (2025). Various types of supra ε -separation axioms and relationships. *European Journal of Pure and Applied Mathematics*, 18(3), 6407–6407.
5. Aldawood, M., Abd El-latif, A. M., Aldwoah, K., Azzam, A. E., Hasnaoui, A., et al. (2025). Supra regularity and supra normality inspired by supra-open sets. *European Journal of Pure and Applied Mathematics*, 18(3), 6408–6408.
6. Hasnaoui, A., & Zaghdani, A. (2025). A Faber-Krahn inequality for nonhomogeneous wedge-like membranes. *AIMS Mathematics*, 10(5), 11988–11997.
7. Zaghdani, A., & Hasnaoui, A. (2024). Analysis of a weak Galerkin mixed formulation for modified Maxwell’s equations. *Mathematics*, 12(24), 3901.
8. Sboui, A., & Hasnaoui, A. (2024). Boundary layers of time-dependent convection-diffusion equations in a square. *International Journal of Analysis and Applications*, 22, 230–230.
9. Ayari, M., Klai, Z., Gharbi, A., & Hasnaoui, A. (2024). Application of wavelet transform in astronautics: Optimization of signals and data for advanced analysis. *Letters in High Energy Physics*, 2024, 5913–5934.
10. Nazar, N., Kallel, M., Sellami, R., & Hasnaoui, A. (2024). Simulation insights into perovskite active layers for enhancing solar cell efficiency. *Communications on Applied Nonlinear Analysis*, 32(3), 420–438.
11. Klai, Z., Gharbi, A., Ayari, M., El Touati, Y., Khedhiri, N., et al. (2024). Optimizing electromagnetic isolation in antenna systems: Advanced simulation techniques for

- guard-ring structures. *Nanotechnology Perceptions*, 20(7), 1059–1072.
12. Klai, Z., Gharbi, A., Ayari, M., El Kamel, A., Khedhiri, N., et al. (2024). Optimizing isolation performance in high-frequency systems: Evaluating the impact of interruption techniques on BDL layers for enhanced electromagnetic coupling control. *Nanotechnology Perceptions*, 20(7), 1035–1058.
 13. Hasnaoui, A., & Zaghdani, A. (2024). Chiti-type reverse Hölder inequality and Saint-Venant theorem for wedge domains on spheres. *International Journal of Analysis and Applications*, 22, 87–87.
 14. Sboui, A., & Hasnaoui, A. (2022). Payne-Sperb-Stakgold type inequality for a wedge-like membrane. *International Journal of Analysis and Applications*, 20, 20–20.
 15. Hasnaoui, A., & Sboui, A. (2022). A sharp upper bound for the first Dirichlet eigenvalue of cone-like domains. *Archiv der Mathematik*, 115(6), 691–701.
 16. Hasnaoui, A., & Hermi, L. (2015). A sharp upper bound for the first Dirichlet eigenvalue of a class of wedge-like domains. *Zeitschrift für angewandte Mathematik und Physik*, 66(5), 2419–2440.
 17. Gamara, N., Hasnaoui, A., & Makni, A. (2015). Torsional rigidity on compact Riemannian manifolds with lower Ricci curvature bounds. *Open Mathematics*, 13(1), 000010151520150053.
 18. Hasnaoui, A., & Hermi, L. (2014). Isoperimetric inequalities for a wedge-like membrane. *Annales Henri Poincaré*, 15(2), 369–406.
 19. Gamara, N., Hasnaoui, A., & Hermi, L. (2011). Max-to-mean ratio estimates for the fundamental eigenfunction of the Dirichlet Laplacian. In *Entropy and the Quantum II: Arizona School of Analysis with Applications*.

CONFERENCES

Conference and Seminar Talks

Presentation: A Reverse Hölder Inequality for the First Eigenfunction of a Wedge-like Membrane; “Dar El Hout Analysis Days” organised by Professor Mohamed Majdoub and Professor Abbas Bahri, 29-30 July 2010.

Participation at conferences, courses, seminars

1. Participation with Financial support from Luminy: CIRM Conference on “Shape Optimization problems and spectral theory”, May 28–June 2, 2012, Marseille, France.
<http://www.lama.univ-savoie.fr/ANR-GAOS/CIRM2012/>
2. Participation with financial support from the NSF-sponsored conference; “From Carthage to the World: The Isoperimetric Problem of Queen Dido and its Mathematical Ramifications”, Carthage, Tunisia, 24-29 May 2010.
<http://math.arizona.edu/~dido>
3. Participation with National Science Foundation (NSF-US) support; “Arizona School of Analysis and Application”, University of Arizona, USA: , 15-19 March 2010.
<http://www.mathphys.org/AZschool/>.
4. Participation and Presentation: Dar El Hout Analysis Days, Tunis, Tunisia, July 2010
5. Participation, “Evolution Equations and Dynamical Systems: Conference on the occasion of the 60th birthday of Professor Alain Haraux”, Hammamet, Tunisie, 23-27 Mars, 2009.
<http://www.math.univ-metz.fr/~harauxconference/>

ASSOCIATIONS

Member, American Mathematical Society, 2016

Tunisian Math Society, 2007

Last updated: 10/1/2025