

CURRICULUM-VITAE

Faouzi LAKRAD

Education and qualifications

July 2012: Habilitation in Mechanics, University Hassan II Casablanca, Morocco: *Etude des vibrations non linéaires des structures en présence d'excitations harmoniques à différentes échelles de temps.*

March 2001: PhD in Mechanics, University Hassan II Casablanca, Morocco:

Professional appointments

2023-Present: Director of Laboratory of Renewable energy and dynamics of systems, University Hassan II Casablanca, Morocco.

2018-Present: Full Professor, University Hassan II Casablanca, Morocco.

2012-2018: Associate Professor, University Hassan II Casablanca, Morocco.

2008-2012: Assistant professor University Hassan II Casablanca, Morocco.

2005-2007 : Director of research at Institut polytechnique privé de Casablanca, Morocco.

2003-2004: Alexander Von Humboldt fellowship, Institute of Mechanics B, University of Stuttgart, Germany.

2001-2003: Postdoctoral researcher, Institute of Mathematics, Free University of Berlin, Germany.

Areas of research interest

- (i) Nonlinear dynamics and vibrations of mechanical structures.
- (ii) Energy harvesting
- (iii) AFM & MEMS
- (iv) Bifurcations theory
- (v) Perturbation methods.
- (vi) Hand-arm vibrations

Recent Selected Publications in Journals [since 2017]

[1] J. Takhchi, M. Ouisse, E. Sadoulet-Reboul, N. Bouhaddi, L. Gagliardin, F. Bornet, L. Gavric, **F. Lakrad**. *A method to investigate mid and high-frequency vibration energy transfer paths using the irrotational intensity*. Journal of Sound and Vibration, Volume 572, 118160, 2024.

[2] **F. Lakrad**, J. Pender, R. Rand. *Queues with delayed information : a dynamical systems perspective*. SIAM Journal on Applied Dynamical Systems 21(1), 676-713, 2022.

[3] N. Hida, M. Abid, **F. Lakrad**. *Nonlinear biodynamic models of the hand-arm system and parameters identification using the vibration transmissibility or the driving-point mechanical impedance*. Journal of Applied and Computational Mechanics 7(2), 944-955, 2021.

- [4] N. Hida, M. Abid, **F. Lakrad**. *Supervised and unsupervised machine learning for gender identification through hand's anthropometric data*. International Journal of Biometrics 12(3), 337-355, 2020.
- [5] A. Chtouki, **F. Lakrad**, M. Belhaq. *Quasi-periodic bursters and chaotic dynamics in a shallow arch subject to a fast-slow parametric excitation*. Nonlinear Dynamics 99, 283-298, 2020.
- [6] A. Chtouki, **F. Lakrad**, M. Belhaq. *Nonlinear vibrations of a shallow arch subject to resonant and low harmonic frequency excitations under 1:1 internal resonance*. Chapter in Recent trends in applied nonlinear mechanics and Physics. Springer Proceedings in Physics, vol 199, Springer, 2018.
- [7] S. Baghdadi, **F. Lakrad**, M. Belhaq. *Invariant slow manifolds of an Atomic Force Microscope system under the Derjaguin-Muller-Toporov forces and a slow harmonic base motion*. Matec Web of Conferences 241, 01004, 03 December 2018.
- [8] Z. Ghouli, M. Hamdi, **F. Lakrad**, M. Belhaq. *Quasiperiodic energy harvesting in a forced and delayed Duffing harvester device*. Journal of Sound and Vibration 407, 271-285, 2017.

Selected Conferences [since 2018]

1. N. Hida, M. Abid, **F. Lakrad**. *Mathematical models of hand-arm vibrations*. Humboldt Kolleg, Mehdia, October 04-06, 2023.
2. N. Hida, **F. Lakrad**. *Nonlinear biodynamic models of the hand-arm system*. Humboldt Kolleg, El Jadida, June 01-03, 2023.
3. N. Hida, M.A. Aouadi, **F. Lakrad**. *Linear and nonlinear vibration biodynamic models of hand-arm systems*. CSNDD 2023, Marrakech, May 15-14, 2023.
4. N. Hida, M. Abid, **F. Lakrad**. *Study of various gender identifiers algorithms using hand's measurements*. International Conference on Bioinformatics and data analysis BDA'2019, Tanger, December 12-13, 2019.
5. N. Hida, M. Abid, **F. Lakrad**. *Biodynamic parameters identification of hand-arm systems through mechanical impedance measurements*. 5th Journée Nationale de Vibration & Acoustique, Faculté des Sciences Aïn Chock, Casablanca, 22 Juin, 2019.
6. M. A. Aouadi, **F. Lakrad**. *Linear modeling of 3d flexural vibrations of spinning Rayleigh beams*. International Conference on Structural Nonlinear Dynamics and Diagnosis (CSNDD 2018), Tanger, June 25-27, 2018.
7. A. Chtouki, **F. Lakrad**, M. Belhaq. *Suppression of chaos by a slow harmonic parametric excitation*. International Conference on Structural Nonlinear Dynamics and Diagnosis (CSNDD 2018), Tanger, June 25-27, 2018.
8. N. Hida, M. Abid, **F. Lakrad**. *The hand-arm system vibrations : a theoretical model and experimental tests*. International Conference on Structural Nonlinear Dynamics and Diagnosis (CSNDD 2018), Tanger, June 25-27, 2018.
9. N. Hida, M. Abid, **F. Lakrad**. *Cluster analysis of hand's anthropometric data: dissimilarity measures effects*. First International Symposium on data Science ISDS'18, Université Mohammed VI, Benguerir, June 21-22, 2018.
10. N. Hida, M. Abid, **F. Lakrad**. *Gender identification through hands anthropometric data*. International Conference on Bioinformatics and Data Analysis (BDA'2018), Tanger, March 12-13, 2018.

Scientific community activities

Organizing Committee & Chairman		<ul style="list-style-type: none"> ▪ Three National days on vibration and acoustics:2010-2012. ▪ 1st Workshop of vibration and acoustics, Marrakech, 2011. ▪ CSNDD'12, Marrakech, 2012. ▪ CSNDD'14, Agadir, 2014. ▪ CSNDD'16, Marrakech, 2016. ▪ CSNDD'18, Tanger, 2018 ▪ CSNDD'23, Marrakech, 2023
Scientific Committee		<ul style="list-style-type: none"> ▪ Humboldt Kolleg, Mehdiya, 2023. ▪ Humboldt Kolleg, El Jadida, 2023. ▪ 2nd International Conference on Materials in Jordan, Princess Sumaya University, Amman 9-11 Avril 2011. ▪ Three National days on Vibration and Acoustics,2010-2012. ▪ Congrès de génie civil, Mécanique & environnement, Casablanca, 2016
Reviewing		<ul style="list-style-type: none"> ▪ Journal of sound and vibration, ▪ Journal of vibration and control. ▪ Multibody system dynamics, ▪ Journal of physics A: Mathematical and general, ▪ Nonlinearity, ▪ Nonlinear Dynamics ▪ Computers & Mathematics with Applications, ▪ Physica Scripta.
membership of relevant societies		<ul style="list-style-type: none"> ▪ President of the Maghreb Avh Alumni, since 2023. ▪ Founding member, in 2011, of l'Association Marocaine de Vibration et Acoustique (AMVA). ▪ Société Marocaine des sciences Mécaniques.

Professional honors, awards, fellowships, scholarship

- Alexander von Humboldt fellowships: 1 year in 2003-2004, 2 months in 2013 and 3 months in 2017 (research stays at Stuttgart University, Germany).
- Fulbright fellowship : 03 months in 2019 (research stay at Cornell University, USA).
- Scientific ambassador of the Alexander von Humboldt (2022-2024).