

Curriculum Vitae



Personal Data

Last Name	Mekkaoui Alaoui
First Name	Ismail
Date of Birth	01-01-1959
Phone	+212 524-308563 (home) /212-6-50221287 (mobile)
Work Address	Cadi Ayyad University, Faculty of Sciences Semlalia, Department of Physics B. P. 2390 Marrakech 40000, Morocco
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Education

Certificate	Field	Institute	Date
Ph.D.	Applied Physics	Texas Tech University, Lubbock, TX, USA.	May 1992
Doctorate 3 ^{ieme} cycle	Solid State Electronics	University of Sciences & Technologies, Montpellier, France.	July 1984
B.Sc.	Physics and Chemistry	University Mohamed V, Rabat, Morocco	June 1981

Languages

Arabic (speak, write, and read). English (speak, write, and read).

French (speak, write, and read). Spanish (level B2.1 in Cervantes Institutes)

Computer Experience

MS Windows

MS office MS Word; MS Excel

Math lab

Linux (Ubuntu)

Employment and Research History

During	Institution	Position
1981-84	Electronic Center of Montpellier, France	Graduate Student
1982-84	Academy of Montpellier, France	Auxiliary Teacher
1984-89	Cadi Ayyad University, Marrakech, Morocco	Assistant Professor
Fall 1986	University of Sheffield, England, UK	Research Fellow
1989-92	Texas Tech University, TX, USA	Research Assistant
1992-96	Cadi Ayyad University, Marrakech, Morocco	Associate Professor
1996-present	Cadi Ayyad University, Marrakech, Morocco	Professor of Physics
Spring, 1998	Indian Institute of Sciences, Bangalore, India	Research Fellow
Summer 2003	Texas Tech University, TX, USA	Post Doc.

Summer and Fall 2009	University of Pennsylvania, Philadelphia, USA	Visiting Fulbright Scholar
March-April 2012	Indian Institute of Technology, Kanpur, India	CV Raman Visiting Scholar
Sep, 2016	Indian Institute of Technology, Kanpur, India	CV Raman Senior African Scholar
Summer and Fall 2017	State University of New York, Albany, USA	Visiting Professor

Research areas and present research problems

Previous Research

Solid State Physics: Solar cells characterization, solar cells models, photovoltaic nano-materials.

Current Research

- i) Open educational resources (OER) and pedagogical innovations
- ii) Laser and optical spectroscopy applied in forensic sciences and fingerprint detection using photoluminescent materials such as 1,2-indanediones and nanocrystals.
- iii) Visualization of latent fingerprints. Comparison of family fingerprints. Gender determination from latent fingerprint's residue.

Thesis

DEA (Diplôme d'Etudes Approfondies).

Title : Caractérisation des Photopiles solaires.

Centre d'électronique de Montpellier, France, July **1982**.

Doctorat de 3ieme Cycle.

Dissertation title ; Etude Comparative des Modèles de caractérisation I-V des photopiles.

Juillet **1984**, USTL, Montpellier, France.

Ph.D Thesis.

Dissertation title ; Optical Spectroscopic Properties of Ruhemann's Purple Complexes, Time Resolved Luminescence Imaging and Applications. Texas Tech University, May **1992**.

Scholarships, Fellowships, Grants, Projects.

- Moroccan Ministry of Education Scholarship, 1977-1984
- British Council Fellowship, fall 1986.
- Bucy Scholarship, fall 1989.
- Fulbright Scholarship, 1989-1992.
- COSTED/JNCASR Fellowship, spring 1998.
- Fulbright Postdoctoral Scholarship, 2003.
- Fulbright Visiting Scholar Fellowship, summer and fall 2009.
- C.V. Raman Senior Scholarship, spring 2012.
- US in demand Professional Exchange Fellowship Grant, March 2014
- Award of Excellence, Euro-Mediterranean Institute for Sustainable Development, April 2014
- C.V. Raman Senior African Scholar Grant, September 2016.
- Fulbright Visiting Scholar Grant, summer and fall 2017.
- Projet MOOC-UCA002, Optique Physique, MOOC pour la plateforme MUN) 2018-2019.
- Projet CNDE de Scénarisation du cours physique 1-SVTU-S1, 2022-2023

Conferences, workshops and seminars

Participation to many conferences, workshops and seminars in Morocco and other countries in Africa, Amerique, Asia and Europe.

Training Courses, Institutes and Meetings.

Participation and organization of many training courses, meetings, institutes, scientific and Cultural Manifestations

Publications

- Sofia Margoum, Said Machwate, Ismail Mekkaoui Alaoui, Rachid Bendaoud, Mohamed Bennis, Marc Landry and Khalid Berrada. "From MOOCs to OERs: a case study of the Maroc Université Numérique initiative". K. Berrada and D. Burgos (eds.), Pedagogy, Didactics and Educational Technologies, Lecture Notes in Educational Technology. Springer Nature Singapore Pte Ltd. 2022. https://doi.org/10.1007/978-981-19-5137-4_7
- S. Machwate and I. Mekkaoui Alaoui, Smart Integration Of Evaluation Activities In The Framework Of Physical Optics MOOC (MOOC UCA-002) Of The MUN Platform (2020), The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, Volume XLIV-4/W3-2020.
- I. Mekkaoui Alaoui and J. Halamek, "Fluorescence of 1,2-Indanedione with Amino Acids Present in the Fingerprint Residue: Application in Gender Determination" J. of Forensic Sciences, **2019**. Vol 64, No.5.
- إسماعيل مكاي علوي، "الجودة والنوعية في الموارد التعليمية المفتوحة" الموارد التعليمية المفتوحة الإستخدام والمشاركة والتبني. ص. 171-187. المنظمة العربية للتربية والثقافة والعلوم. ع/04/2019/002، ISBN 978-9973-15-404-0
- A. Tiwari, S. A. Ramakrishna, and I. Mekkaoui Alaoui, "Enhanced visualization of latent fingerprints on rough aluminum surfaces using sequential Au and Zn/ ZnS/ ZnO depositions" J of Forensic Sciences 63(4), **(2018)**, 1275-1281.
- I. Mekkaoui Alaoui "On Morocco's Renewable Energies After COP 22)", Development of Solar Power Generation and Energy Harvesting, M. M. Gaji and A. Verma Editors, NAM S &T Centre, Daya Publishing House **(2018)**, Chap. 9, 101-110.
- I. Mekkaoui Alaoui "Fingerprint Imaging Enhancement by Deposition of Columnar Thin Films Nanostructures". Nano-Structures for Optics and Photonics: Optical Strategies for Enhancing Sensing, Imaging, Communication and Energy Conversion, Editores: Baldassare Di Bartolo, John Collins, Luciano Silvestri, Springer, Oct 6, 2014
- J. Dutta, S. A. Ramakrishna, and I. Mekkaoui Alaoui, "Fingerprint visualization enhancement by deposition of columnar thin films and fluorescent dye treatment" Forensic Science International 228 **(2013)**, pp.32-37.
- I. Mekkaoui Alaoui 'Nano crystalline CdSe Quantum dots and Applications for Finger mark visualization' 'Nanotechnology in the Edge of Convergence' NAM & ST center publications **(2013)**, pp.21-25.
- I. Mekkaoui Alaoui, T. Troxler and M.M. Joullie "Fingerprint development and spectroscopic properties of 1,2-indanedione treatment followed by either zinc chloride or europium chloride". J. of Forensic Identification, 62(1), **(2012)** 1-13.
- I. Mekkaoui Alaoui, "Applications of Luminescence to Fingerprints And Trace Explosives Detection "Unexploded Ordnance Detection and Mitigation, J. Byrnes (ed.) Springer Science, **(2009)** 189-196
- I. Mekkaoui Alaoui, "Photodegradation studies by laser-induced fluorescence of the reaction product of 1,2-indanedione and glycine", Spectroscopy Letters, 40 **(2007)** 715-721.

- I. Mekkaoui Alaoui, "Time-resolved luminescence Imaging and Applications" Imaging for Detection and Identification, (2007) 243-248.
- I. Mekkaoui Alaoui, "Développement des empreintes digitales par laser, méthodes et appareillage" Police magazine, 16 (2006) 74-75.
- I. Mekkaoui Alaoui, E. R. Menzel, M. Farag, K. H. Cheng, and R. H. Murdock
"Mass spectra and time-resolved fluorescence spectroscopy of the reaction product of glycine with 1,2-indanedione in methanol", Forensic Science International 152 (2005) 215-219.
- I. Mekkaoui Alaoui, "Les Techniques de développement des empreintes digitales par laser" Revue de la Sécurité Nationale, 228(44), (2004) 16-18
- I. Mekkaoui Alaoui, and Roland E. Menzel, "Constituent Effects on Luminescence Enhancement in Europium and Terbium Ruhemann's Purple Complexes." J. Forensic Science International, 77 (1996) 3-11.
- I. Mekkaoui Alaoui, "Non-Participation of the Ligand First Triplet State in Intra-molecular Energy Transfer In Europium and Terbium Ruhemann's Purple Complexes." J. of Physical Chemistry, 99 (1995), 13280-13282.
- I. Mekkaoui Alaoui, and Roland E. Menzel, "Emission Enhancement in Terbium Ruhemann's Purple Complexes." J. Forensic Science International, 66 (1994) 203-211.
- I. Mekkaoui Alaoui, and Roland E. Menzel, "Spectroscopy of Rare Earth-Ruhemann's Purple Complexes." J. Forensic Sciences, 38(3) (1993) 506-520.
- I. Mekkaoui Alaoui, "Optical Spectroscopic Properties of Ruhemann's Purple Complexes, Time Resolved Luminescence Imaging and Applications." Ph.D. Texas Tech University, May 1992.
- I. Mekkaoui Alaoui, and Roland E. Menzel, "Optical Spectroscopic Properties of Ruhemann's Purple-(Eu³⁺, Tb³⁺) Complexes." Bulletin of the American Physical Society, Series II, 37(3) (1992) 1169.
- I. Mekkaoui Alaoui, "Etude Comparative des Modèles de caractérisation I-V des photopiles" Thèse de doctorat de troisième cycle, Juillet 1984, USTL, Montpellier, France.
- J.-P. Charles, I. Mekkaoui Alaoui, and G. Bordure. "A critical Study of the Effectiveness of the Models for I-V Characterization of Solar Cells." Solid State Electronics, 28(8) (1985) 807-820.
- J.-P. Charles, I. Mekkaoui Alaoui, and G. Bordure, "Etude Comparative des Modèles a Une et Deux Exponentielles en Vue d'une Simulation Précise des Photopiles." Revue Phys. Appl. 19, (1984) 851-857.

Submitted papers.

S. Bouhemdane, O. Elhaloui, and I. Mekkaoui Alaoui, "Structural Properties of Tb(III)-Ruhemann's Purple Complex and Crystal Structure Determination of [Tb(RP)Cl₂(H₂O)₃].CH₃OH

Books and Pedagogical Manuals

- I. Mekkaoui Alaoui, Cours d'Optique Géométrique, Imprimerie Nationale, Première Edition, Printemps 1995.
- M. Boustani, F. Debbagh and I. Mekkaoui Alaoui, Manuel de Physique: Optique et Electricité, SVT/STU, Printemps 2005.
- M. Boustani, H. Erramli and I. Mekkaoui Alaoui, Manuel de Physique: Optique I, SMP/SMC/SMA, Printemps 2008.
- E. Ech-Chamikh and I. Mekkaoui Alaoui, Manuel de Physique: Optique II, SMP/SMC, Printemps 2013.
- K. Berrada, A. Jehouani and I. Mekkaoui Alaoui, Manuel de Physique1- SVT-S1- Optique, Physique Nucléaire et Thermodynamique. 2015.

Research and Scientific Expertise

Reviewer in the following Journals:

- Forensic Sciences Research, Open access Journal, www.tandfonline.com/TFSR
- Journal of Forensic Science and Medicine (JFSM), Open access Journal
- Ain Shams Engineering Journal, ASEJ-D-15-00388
- Advances in Physical Science Research
- Molecules (ISSN 1420-3049) <http://www.mdpi.org/molecules/>
- Physical and Chemical News
- Sciences et Technologies, ISSN-1111-5041

Reviewer and/or Member of the scientific/pedagogical committee

- CMSE, 2014
- Med. Green, 2009-2011.
- Optique et traitement de l'information 2006-2008
- Department of Physics 2002-2004; 2004-2006 and 2007-2010
- International Congress on Spectroscopy, 2003
- Committee on Science and Technology in Developing countries (COSTED/AraBN), 1995-1998

Expertise.

Experts évaluateur appel à projets de digitaliser des modules des filières Licence d'Etudes Fondamentales (LEF), Centre National de Digitalisation et de l'Enseignement à Distance (CNDE) et Université Mohamed 6. Printemps 2022.

Membership of professional organizations, associations and societies

- Former Member of the American Physical Society.
- Former Member of the Committee on Science and Technology in Developing Countries.
- Former Member of the Fulbright Alumni Association
- Many times Member of the Scientific and Pedagogical Committees, Physics Department, Cadi Ayyad University
- Member of the Cadi Ayyad University Club.
- Member of the Moroccan Fulbright Alumni Association and President of the Marrakech Chapter.
- Member of the Moroccan Society of Optics
- Member of the Moroccan Society of Applied Physics
- Member of the European Physical Society
- Member of the Open Book Project Advisory Committee.

Teaching Experienc

Taught many courses at undergraduate and graduate levels at the Cadi Ayyad University, Marrakech. Instrumental Optics, Statistical Mechanics, Quantum Mechanics, Electricity, optoelectronics, laser physics, Thermodynamics, Optical Physics, English as Foreign Language, etc.

Thesis and Dissertations (Supervision and committee member)

Membre and president of many dissertations and thesis committees.

MOOCS-OER

Responsible and pedagogical committee member of the 'MOOC d'optique physique' of the MUN plateforme. <https://www.mun.ma/>

December 14th, 2023.