

Curriculum Vitae

Personal Information:

Surname: Graba

Given Name: Bisma

Nationality: Tunisian

Residence Permit: 2371529096

Marital Status: Married

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Personal Address: University of Sciences – Arar- Northern Border University

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EDUCATION:

2006: Ph. Degree, in Energy Engineering, National School of Engineers of Monastir: ENIM, Tunisia. **Observation: very honorable**

1999: Master of Advanced Study, in Energy Engineering, National School of Engineers of Monastir: ENIM, Tunisia. **Observation: very good**

1997: Master, Physics, Faculty of Science of Monastir, Tunisia. **Observation: fairly good**

TEACHING

2024-2026 – Assistant professor in the Physics Department – College of Science – Arar – Northern Border University

2023-2024 – Assistant professor in the Electronic Department – Engineering College – Arar – Northern Border University

2014-2022 – Assistant professor in the Physics Department – College of Sciences and Arts for Girls – Turaif – Northern Border University

2020-2022 – Vice- dean for Academic affairs – Applied College – Turaif – Northern Border University

2014-2016 – Vice- dean for Academic affairs –College of Science and Arts for Girls – Turaif – Northern Border University

- 2019-2020** – **Coordinator of the Physics Department** – College of Science and Arts for Girls
– Turaif – Northern Border University
- 2014-2015** – **Head of the Physics Department** – College of Sciences and Arts for Girls –
Turaif
- 2013- 2009** – **Participation in the Quality Enhancement Program (PAQ) from the University
of Sousse, Tunisia, as a member.**
- 2007-2014** – **Assistant Professor**– *Higher Institute of Applied Science and Technology of
Sousse, Tunis*
- 2004-2007** – **Assistant professor** – *Higher Institute of Applied Science and Technology of
Sousse, Tunis*
- 1999-2004** – **Contract Assistant Professor** – *Higher Institute of Computer Science and
Communication Technology of Hammam Sousse, Preparatory Institute for
Engineering Studies of Monastir and Faculty of Science of Monastir, Tunis*

TEACHING EXPERIENCE

License in Fundamental Physics:

- Renewable Energy
- Energy and Environment
- Modern physics
- Physical Optics, Geometrical Optics
- Optic Lab
- General physics 1, 2 and 3
- Introduction to medical physics
- Laser physics and its applications
- Electronic Lab
- Classical Mechanics 1 and 2
- Thermodynamics, Heat Transfer, Radiation
- Electricity and magnetism
- Atomic and molecular physics
- Nuclear physics
- Computational Physics
- Modern physics
- Graduate project

FOREIGN LANGUAGES

- Arab mother tongue
- French good skills, both written and oral.
- English good skills, both written and oral

TECHNICAL RESEARCH SKILLS

- Operating systems: Windows
- Programming languages: Fortran, Matlab, C++
- Logiciels: Origin, Grapher, Crocodile, Excel, Matlab

Supervisor, Member, and Jury President from 2005-2024

- Supervisor, Member, and Jury President for final-graduate projects at the Higher Institute of Applied Sciences and Technology of Sousse Tunisia since 2005 to 2013.
- Supervisor, Member, and Jury President for final-graduate projects at the College of Science and Arts Turaif, Northern Border University since 2017.

TRAINING INTERNSHIP

- Scientific internship at the **LET Laboratory at ENSMA, Futuroscope Poitiers, FRANCE, December 2004.**

PUBLICATIONS AND COMMUNICATIONS

ARTICLES

- Heni Zribi, Taycir Ben Abid, Abdelkarim Elloumi, Yasmina Hani, **Besma Bechir Graba**, Aderrahman Elmhamedi, Industry 4.0: digital twins characteristics, applications, and challenges in-built environments Production & Manufacturing Research, **2025/12/31**, Volume 13, Pages, 2456277, Taylor & Francis
- Karrar Ibrahim Abdulameer, Hyder H Abed Balla, Mohamed Shaban, Ahmad Almadhor, Shaxnoza Saydaxmetova, Fatma Aouaini, Salah Knani, **Besma Graba**, Hakim AL Garalleh, Effective cooling and thermal management strategies for cylindrical lithium-ion battery pack system leveraging supercritical CO₂, **2025/8/1**, Volume, 272, Pages, 126321, Applied Thermal Engineering, Pergamon
- Ismahene Ben Khemis, Salah Knani, Fatma Aouaini, **Besma Graba**, Abdelmottaleb Ben Lamine, New insights into the docking mechanism of 4-methylphenol adsorption on cow and human olfactory receptors: Molecular docking simulation statistical physics modeling, **2025/4/23**, Materials Chemistry and Physics, Pages, 130929, Elsevier
- Salah Knani Nouredine El Messaoudi, Youssef Miyah, Jordana Georgin , Dison S.P. Franco, Mohammed Benjelloun, Meryem Boudkhili, Fatima Rida, Yuhoon Hwang, Małgorzata Wasilewska, **Besma Graba**, Recent advances in strontium ion removal from wastewater, **2025/4**, Applied Materials Today, Volume, 43, Pages, 102641

- Zarimah Mohd Hanafiah, Wan Hanna Melini Wan Mohtar, Nouredine El Messaoudi, Youssef Miyah, Ali Maged, Salah Knani, Besma Graba, Yusufjon Gafforov, Wan Abd Al Qadr Imad Wan, Wastewater treatment using Ganoderma species via ganoremediation bioreactor: A comprehensive review, *Bioresource Technology Reports*, **2025/3/28**, Pages, 102105, Elsevier
- I Ben Khemis, B Gassoumi, F Aouaini, S Knani, Advanced investigation of the adsorption process of geosmin molecules on polar bear and camel olfactory receptors: statistical physics treatment, in-depth DFT-modeling, and docking analysis, *Journal of Computer-Aided Molecular Design*, **2025/12**, *Journal of Computer-Aided Molecular Design*, Springer International Publishing
- Nathália Favarin da Silva, Ana Carolina Ferreira Piazzzi Fuhr, Fernando Machado Machado, Vivian Prá Philippi, Luis Felipe Oliveira Silva, Salah Knani, Besma Graba, Guilherme Luiz Dotto, Adsorption of Diclofenac Potassium and Ivermectin by Grape Residue-Derived Biochar: Physical Activation, Acid Functionalization, and Advanced Adsorption Modeling, **2025/12**, *Water, Air, & Soil Pollution*, Springer International Publishing
- Mohsin Ali Koondhar, Lutfi Albasha, Ibrahim Mahariq, Besma Bechir Graba, Ezzeddine Touti, Reviewing floating photovoltaic (FPV) technology for solar energy generation, **2024/7/1**, *Energy Strategy Reviews*, Volume, 54, Pages, 101449, Elsevier.
- Sana Ijaz, Abida Kausar, Munawar Iqbal, Nouredine El Messaoudi, Youssef Miyah, Salah Knani, Besma Graba, Advances in extraction of silica from rice husk and its modification for friendly environmental wastewater treatment via adsorption technology, *Journal of Water Process Engineering*, **2025/3/1**, Volume, 71, Pages, 107187, Elsevier.
- Ismahene Ben Khemis, Fatma Aouaini, Kholoud Saad Al-mugren, Salah Knani, Besma Graba, Abdelmottaleb Ben Lamine, Theoretical study of a putative adsorption mechanism of arginine and glutamate on goldfish 5.24 and zebrafish Z06: Statistical physics modeling, thermodynamic study, *Journal of Molecular Structure*, **2025/2/5** , Volume, 1321, Pages, 139862, Elsevier;
- Nouredine El Messaoudi, Funda Aydın, Youssef Miyah, Yasmine Fernine, Jordana Georgin, Malgorzata Wasilewska, Mohammed Benjelloun, Basma Graba, Salah Knani, Metal and metal oxide nanoparticles combined with ionic liquids and deep eutectic solvents and their practices in drug extraction and environmental processes: A review, *Journal of Molecular Liquids*, **2025/1/17**, Pages, 126955, Elsevier
- Removal of ivermectin from aqueous medium on chitosan-based magnetic adsorbent, Franciele da Silva Bruckmann, Theodoro da Rosa Salles, Salah Knani, Besma Graba, Luiza Baumann, Edson I Müller, Wagner JS Garcia, Arthur H de Oliveira, M Alves Maria do Carmo, Jonder Morais, Kátia da Boit Martinello, Luis FO Silva, Guiherme L Dotto, Cristiano RB Rhoden, **2024/11/1**, *Journal Inorganic Chemistry Communications*, Volume 169, Pages, 113006, Elsevier
- Steric and energetic investigations of adsorption isotherms of methylene blue on new polymeric multi-layered material-based k-carrageenan and alginate, Abdellatif Sakly, Nizar

- Lefi, EL-Ghoul Yassine, Mohamed Bouzid, Salah Knani, Basma Graba, Abdelmottaleb Ben Lamine, **2024/10/1**, Desalination and Water Treatment, Volume 320, Pages 100635, Elsevier
- A comprehensive performance analysis of advanced hybrid MPPT controllers for fuel cell systems, Ezzeddine Touti, Shaik Rafikiran, Besma Bechir Graba, Mouloud Aoudia, S Senthilkumar, **2024/5/31**, Scientific Reports, Volume 14, Issue 1, Pages 12510, Nature Publishing Group UK
 - Eco-Friendly Energy from Flowing Water: A Review of Floating Waterwheel Power Generation, Mohsin Ali Koondhar, Samandar Khan Afridi, Abdul Sattar Saand, Abdul Rafay Khatri, Lutfi Albasha, Zuhair Muhammed Alaas, Besma Bechir Graba, Ezzeddine Touti, Mouloud Aoudia, MMR Ahmed, **2024/6/25**, IEEE Access, IEEE
 - Terminal Voltage and Load Frequency Control in a Real Four-Area Multi-Source Interconnected Power System With Nonlinearities via OBO Algorithm, Tayyab Ali, Muhammad Asad, Ezzeddine Touti, Besma Bechir Graba, Mouloud Aoudia, Ghulam Abbas, Hammad Alnuman, Waleed Nureldeen, **2024/9/2**, IEEE Access, IEEE
 - Advancements in adsorption and photocatalytic degradation technologies of brilliant green from water: Current status, challenges, and future prospects, Nouredine El Messaoudi, Youssef Miyah, Wan Abd Al Qadr Imad Wan, Zarimah Mohd Hanafiah, Joshua O Ighalo, Ebuka Chizitere Emenike, Jordana Georgin, Mohamed Laabd, Laila Nouren, Abida Kausar, Basma Graba, Materials Today Chemistry, **2024/12/1**, Volume 42, Pages 102399, Elsevier
 - Analytic solution Parallel RLC Second Order Systems, Amira Farah Anoud Alshammar, Ehssan Ahmed, Alaa Abdealgader, Besma Graba, Nagwa Bahridin, Manal Ibraim, **24/11/13**, Kexue Tongbao/Chinese Science Bulletin, Volume 69, Issue 0023-074X, SCIENCE PRESS
 - Mathematical Model of Heat Transfer, Alaa Mustafa Ehssan Ahmed, Besma Graba, Taycir Ben Abid, **2024/11/11**, Kexue Tongbao/Chinese Science Bulletin, Volume 69, Issue 0023-074X, SCIENCE PRESS
 - Machine Learning-Based Multiclass Anomaly Detection and Classification in Hybrid Active Distribution Networks, Sadullah Chandio, Javed Ahmed Laghari, Muhammad Akram Bhayo, Mohsin Ali Koondhar, Yun-Su Kim, Besma Bechir Graba, Ezzeddine Touti, **2024/8/16**, IEEE Access, IEEE
 - A Universal Source DC–DC Boost Converter for PEMFC-Fed EV Systems With Optimization-Based MPPT Controller, CH Hussaian Basha, Shaik Rafikiran, Ezzeddine Touti, Besma Bechir Graba, Mouloud Aoudia, 2024, International Transactions on Electrical Energy Systems, Volume **2024**, Issue 1, Pages 5520331, Wiley
 - Recovery and concentration of Eu and Dy from real leachate using wastes as adsorbents: Standard adsorption study and fixed bed operation,FS Bruckmann, ACFP Fuhr, MLS Oliveira, LFO Silva... - SEPARATION AND PURIFICATION TECHNOLOGY; **2025/11/18**, SEPARATION AND PURIFICATION TECHNOLOGY, ELSEVIER
 - ACP Dos Santos, JA Porciuncula, LV Zancanaro, Magnetic nanocellulose for losartan removal: Adsorption and ecotoxicity assessment, **2025/10/14**, International Journal of Biological Macromolecules, Elsevier

- Ismahene Ben Khemis, Fatma Aouaini, Salah Knani, Ghadeer Mohsen Albadrani, Besma Graba, Mohamed Houcine Dhaou, Abdelmottaleb Ben Lamine; [A chitosan-lignin biocomposite adsorbent for RO16 dye and Cr \(VI\) heavy metal removal from aqueous solutions: new interpretations via experiments and statistical physics analysis](#), 2025/8/31, BMC chemistry, Springer International Publishing

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