

CURRICULUM VITAE

PERSONAL DATA

Name	Mohannad Al-Hmoud
Nationality	German
Position	Associate Professor
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EDUCATION

Year	Academic Degree	Institution
2013	Ph.D. in Physics	University of Paderborn, Germany
2007	M.Sc. in Physics	University of Stuttgart, Germany
2003	B.Sc. in Applied Physics	Jordan University of Science and Technology, Jordan

WORK EXPERIENCE

Period	Position	Address
June 2024 - present	Associate Professor of Physics, Imam Mohammad Ibn Saud Islamic University, Saudi Arabia	Riyadh, Saudi Arabia
Jun 2008 – Aug 2012	Research assistant in the group of Nanostructure Optoelectronics, Department of Physics, University of Paderborn	Riyadh, Saudi Arabia
Jun 2008 – Aug 2012	Research assistant in the group of Nanostructure Optoelectronics, Department of Physics, University of Paderborn	Paderborn, Germany
Aug 2005 – Jul 2008	Research assistant at the 5th Institute of Physics, University of Stuttgart	Stuttgart, Germany

RESEARCH INTERESTS

- Simulation of photonic crystals (Finite-Difference Time-Domain method)
- Photonic crystal nanocavities
- Light-matter interaction in optical cavities
- Color centers in diamond
- Optical sensors

PUBLICATIONS

- G. Balasubramanian, I.Y. Chan, R. Kolesov, M. Al-Hmoud, et al., Nanoscale imaging magnetometry with diamond spins under ambient conditions, *Nature* 455, 648-651 (2008)
- S Michaelis de Vasconcellos, S. Gordon, D. Mantei, Y. A. Leier, M. Al-Hmoud, W. Quiring and A. Zrenner, Chapter: "Coherent optoelectronics with quantum dots" in Quantum optics with semiconductor nanostructures, Edited by F. Jahnke, University of Bremen, Germany (Woodhead Publishing Limited, 2012)
- W. Quiring, M. Al-Hmoud, A. Zrenner, et al., Photonic crystal cavities with metallic Schottky contacts, *Appl. Phys. Lett.* 107, 041113 (2015)
- Adel Al Rehaily, Saleh Assahaly, Mohannad Al Hmoud and Smail Bougouffa, Ground-State Cooling in Cavity Optomechanics with and without Rotating-Wave Approximation, *AIP Conference Proceedings* 1976, 020024 (2018)
- Saud Al-Awfi, Mohannad Al-Hmoud, and Smail Bougouffa, Ground-State Cooling in Cavity Optomechanics with Unresolved Sidebands, *EPL*, 123, 14005 (2018)
- Smail Bougouffa & Mohannad Al-Hmoud, Bipartite Entanglement in Optomechanical Cavities Driven by Squeezed Light, *International Journal of Theoretical Physics* 59, 1699–1716 (2020)
- Mohannad Al-Hmoud, and Smail Bougouffa, Simultaneous high Q/V-ratio and optimized far-field emission in diamond slot-bridge nanobeam cavity, *Results in Physics*, 26, 104314 (2021)
- Mohannad Al-Hmoud, Rasha Alyahyan, High sensitivity and low detection limit sensor based on a slotted nanobeam cavity, *Phot. Lett. Pol.* 14, 3, 59, (2022)
- Smail Bougouffa, Mohannad Al-Hmoud, and Jabir Wali Hakami, Probing Quantum Correlations in a Hybrid Optomechanical System, *International Journal of Theoretical Physics* 61, 190 (2022)
- M Al-Hmoud, High-Sensitivity and Wide Detection-Range Refractive-Index Sensor Based on Amplitude Change in Slotted Photonic Crystal Nanobeam Cavity, *J. Nanoelectron. Optoelectron.* 18, 673–679 (2023)
- AM Alsaad, M Al-Hmoud, MW Marashdeh, MJ Aljaafreh, TM Rababah, Design and modeling of a novel highly sensitive surface plasmon resonance sensor applying tin selenide and graphene for cancer detection, *Plasmonics*, 1-9 (2023)
- M Al-Hmoud, Single nanoparticle detection based on a slotted nanobeam cavity, *Photonics and Nanostructures-Fundamentals and Applications* 59, 101258 (2024)