

Abdullah Alodhayb
PhD in Condensed Matter Physics
Department of Physics and Astronomy
King Saud University

• **Personal Information**

- **Place of Birth:** Onezah, Saudi Arabia
- **Phone Number:** +966555079030
- **Email:** aalodhayb@ksu.edu.sa
- **Languages:** Arabic and English

• **Education**

- **Memorial University of Newfoundland** || St. John's, Canada **2011- 2016**
Ph.D, Condensed Matter Physics, Sensor group
Thesis Title: Development of Calix[4]arene-Functionalized Microcantilever Array Sensing System for the Rapid, Sensitive and Simultaneous Detection of Metal Ions in Aqueous Solutions

- **Memorial University of Newfoundland** || St. John's, Canada **2009-2011**
Master of Science (M.Sc.) in physics
Thesis Title: Towards Detecting the Human Immunodeficiency Virus Using microcantilever sensors

- **King Saud University** || Riyadh, Saudi Arabia **2003-2007**
Bachelor of Physics (B.Sc.)

• Publications

- 1- Georghiou, P. E., Rahman, S., Valluru, G., Dawe, L. N., Rahman, S. S., **Alodhayb, A. N.**, & Beaulieu, L. Y. (2013). Synthesis of an upper-and lower-rim functionalized calix [4] arene for detecting calcium ions using a microcantilever sensor. *New Journal of Chemistry*, 37(5), 1298-1301.
- 2- **Alodhayb, A.**, Brown, N., Rahman, S. S., Harrigan, R., & Beaulieu, L. Y. (2013). Towards detecting the human immunodeficiency virus using microcantilever sensors. *Applied Physics Letters*, 102(17), 173106. *[This paper was highlighted by the Group advances in Engineering (<https://advanceseng.com>)].*
- 3- Manning, K. Y., Butt, N. R., **Alodhayb, A.**, Saika-Voivod, I., & Beaulieu, L. Y. (2013). Modeling the motion and detection of particles in microcantilever sensor cells. *Journal of Applied Physics*, 113(11), 114501.
- 4- **Alodhayb, A.**, Rahman, S. S., Rahman, S., Valluru, G. K., Georghiou, P. E., & Beaulieu, L. Y. (2014). Detection of calcium ions using gold-coated micro-cantilever sensors using upper-and lower-rim functionalized calix [4] arenes. *Sensors and Actuators B: Chemical*, 203, 766-773.
- 5- Valluru, G., Rahman, S., Georghiou, P. E., Dawe, L. N., **Alodhayb, A. N.**, & Beaulieu, L. Y. (2014). Synthesis of a cone-conformer bimodal calix [4] arene-crown-5 which forms a sensitive cesium ion sensing layer on gold-coated microcantilevers. *New Journal of Chemistry*, 38(12), 5868-5872.
- 6- Rahman, S., Assiri, Y., **Alodhayb, A. N.**, Beaulieu, L. Y., Oraby, A. K., & Georghiou, P. E. (2015). Naphthyl “capped” triazole-linked calix [4] arene hosts as fluorescent chemosensors towards Fe^{3+} and Hg^{2+} : an experimental and DFT computational study. *New Journal of Chemistry*.
- 7- **Alodhayb, A. N.**, Braim, M., Valluru, G., Beaulieu, L. Y., Rahman, S., Oraby, A. K., & Georghiou, P. E. (2015). Metal ion binding properties of a bimodal triazolyl-functionalized calix [4] arene on a multi-array microcantilever system. Synthesis, fluorescence and DFT computation studies. *RSC Advances*.
- 8- **Alodhayb, A.**, Rahman, S., Valluru, G. K., Georghiou, P. E., & Beaulieu, L. Y. (2016) A 16-Microcantilever Array Sensing System for the Rapid and Simultaneous Detection of Analyte *Sensors and Actuators B: Chemical*.

• Manuscripts in Preparation

- 1- Braim, M, Alodhayb, A., Rahman, S., Valluru, G. K., Georghiou, P. E., & Beaulieu, L. Y. Studies on the effect of counteranion and binding properties of a bimodal triazolyl-functionalized calix[4]arene using microcantilever arrays.

• Conferences

- 1- Abdullah Alodhayb and L.Y. Beaulieu. Development of Microcantilever Array Sensing System for the Rapid, Real Time and Simultaneous Detection of Metal Ions. **Summer Organic Chemistry Conference, Memorial University, St. Johns, Canada, Aug (2012)**
- 2- Abdullah Alodhayb, Nicole Brown, S. M. Saydur Rahman, Richard Harrigan, L.Y. Beaulieu. Towards Detecting the Human Immunodeficiency Virus (HIV) Using Microcantilever Sensors. . **The 10th International Workshop in Micromechanical Sensing, Stanford, San Francisco, USA, 1-3 May (2013)**
- 3- Abdullah Alodhayb, Georghiou , P.E., Rahman, S., Valluru , G., Dawe , L.N., Rahman , S.M.S., Alodhayb, Abdullah .N. Beaulieu , L.Y. Synthesis of an upper- and lower-rim functionalized calix[4]arene for detecting calcium ions using a microcantilever sensors. **The 13th International Conference in Calixarene. St.Johns, Canada, July (2013)**
- 4- Abdullah Alodhayb, S. M. Saydur Rahman, S. Rahman, G. K. Valluru, P. E. Georghiou and L.Y. Beaulieu. Detection of calcium ions using gold-coated micro-cantilever sensors using upper- and lower-rim functionalized calix[4]arenes. **The 11th International Workshop in Micromechanical Sensing, Madrid, Spain, 30 April -2 May (2014)**
- 5- Abdullah Alodhayb and L.Y. Beaulieu. Development of Microcantilever Array Sensing System for the Rapid, Real Time and Simultaneous Detection of Metal Ions. **Academic Achievement Exhibition, Ottawa, Canada, May (2015)**

• Honors and Awards

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| ➤ Fellow of the School of Graduate Studies | December 2015 |
| ➤ Graduate Teaching Assistant Award, Memorial University | September 2015 |
| ➤ Received an outstanding student award by the Saudi Cultural Bureau and was also invited to participate in the Academic Achievement Exhibition at the 2015 Graduation Ceremony in Ottawa, Canada | May 2015 |
| ➤ Saudi Cultural Bureau's Award for Research Excellence | Aug 2014 |
| ➤ Saudi Cultural Bureau's Award for Research Excellence | May 2014 |
| ➤ Saudi Cultural Bureau's Award for Research Excellence | March 2014 |
| ➤ Saudi Cultural Bureau's Award for Educational Excellence | Dec 2013 |
| ➤ King Abdullah Scholarship for Higher Education | July 2008 |

• Work Experience

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| ➤ Project Supervisor | 2011-2013 |
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- *Supervised four graduation projects for four undergraduate students in the Bachelor of Technology program at Memorial University*

Titles of Projects that were completed under my direct supervision:

- 1- *An Analysis of the Security Threats of Wireless Local Area Networks and an Introduction to the Best Practices for Securing these Networks*
- 2- *Analyzing the Effectiveness of Ontario's Green Energy*
- 3- *Loss Measurement of a Squirrel Cage Induction Motor*
- 4- *Development of an Experimental Apparatus for the Simultaneous Physical Measurements*

➤ **Teaching Assistant**

2011-2015

Department of Physics and Physical Oceanography, Memorial University of
Newfoundland, St. Johns, NL, Canada

I have been a Teaching Assistant for the following courses:

- 1- PHYS 1020 Introductory Physics
- 2- PHYS 1021 Introductory Physics I
- 3- PHYS 1050 Mechanics
- 4- PHYS 1051 Electricity and Magnetism
- 5- PHYS 3400 Thermodynamics

Duties:

- *Providing laboratory guidance to students, assist students during tutorial sessions and demonstrating the experiments.*
- *Answering students' inquiries on laboratory material and laboratory-related course material*
- *Marking laboratory reports and giving feedback to students.*
- *Performing pre-lab safety checks.*

• Computer and Software Skills

- **MS PowerPoint and MS Word**
- **MS Excel**
- **CorelDraw**
- **Grapher**
- **Visual Basic**
- **SPIP Image Processing**
- **AutoCAD**
- **Inventor**

• **Training and Workshops**

- **Laboratory Safety** **June 2010**

*Occupational Health and Safety Training Program,
Memorial University of Newfoundland, St. Johns, NL, Canada*

- **Workplace Hazardous Materials Information System** **June 2010**

*Occupational Health and Safety Training Program,
Memorial University of Newfoundland, St. Johns, NL, Canada*

• **Experimental and computational Expertise**

I have an expertise in the following experimental techniques:

- 1- Atomic Force Microscopy (AFM)
- 2- Scanning Tunneling Microscopy (STM)
- 3- Scanning Tunneling Microscopy (SEM)
- 4- Sputtering Deposition System
- 5- Thermal Evaporation
- 6- X-ray powder diffraction (XRD)

• **Extracellular Activities**

- President and Founder of Saudi Student Association at Memorial
University of Newfoundland **June 2011-Dec 2012**
- Vice president of Saudi Student Association at Memorial University of
Newfoundland **Dec 2012-Dec 2013**