Dr Khalid Alzahrani
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Contact details

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Education

PhD in physics,2010, Leeds University, UK

Research interests

My research interests center on:

- Developing some biosensors in different fields using mechanical and Nanotechnology-based approaches.
- Understanding the impact of some factors on the behavior of mammalian and microbial cells. I focus on changes in Nano-mechanical properties of cells and in their membrane nanostructure. We mainly use AFM, TEM and SEM. For AFM, we developed a technique to image live microbial cells with different sizes and shapes, and with high resolution.
- The use of nanoparticles as a promising therapeutic approach in medicine.
- Single-molecule and single cell force-spectroscopy measurements using AFM. This topic is one of our main interests. In our current research, we investigate the physical nature of interactions between some molecules, such as hestatin proteins, and surfaces, in particular dental surfaces, under different physiological conditions by functionalizing the AFM tip with the molecule of interest. Also, the measurements of identifying the molecules responsible for interactions between two different microbial species are carried out in our lab.

Recent publications

Khalid Alzahrani, Arun Kumar Shukl, Javed Alam, Abdurahman A.Niazy, Abdullah M.Alsouwaileh, Mansour Alhoshan, Jamal Khalid, Hamdan S.Alghamadi. (2020) Probing the surface ultrastructure of Brevibacillus laterosporus using atomic force microscopy. Micron

Abdullah Alswieleh, A. Alshahrani, M**.** **Alzahrani, K**. Alghamdi, H. Niazy, A. Alsilme, A. Beagan, A. Alsheheri, A. Alghamdi, A. and Almeataq, M. (2019) Surface Modification of pH-Responsive Poly(2-(tert-butylamino)ethyl methacrylate) Brushes Grafted on Mesoporous Silica Nanoparticles. Designed Monomers and Polymers. In press.

AlZahrani, K. Devanesan, S. MASILAMANI,V. Al Qahtani, F. AlSalhi, M. Canatan, D. Farhat, K. (2019). Facile spectroscopy and atomic force microscopy for the discrimination of α and β thalassemia traits and diseases: A photodiagnosis approach. Photodiagnosis and Photodynamic Therapy.

Sang Hak Lee; Hong Bae Kim; So Young Bak; Kyung Suk Min**; Khalid Alzahrani**; Rizwan Wahab; Abdulaziz Alkhedhairy; Chang Kyu Sung; Seong Keun Kim (2018). Facile Discrimination of Normal vs. Cancer Cells by Cellular Electroporation Probed by AFM and Fluorescence Assay. *PLosOne*.

Bak SY, Hwang J, Bae S, Lim S, Kim Y, **Alzahrani K**, Wahab R, Alkhedhairy A, Kim SK (2018). General and facile purification of dye-labeled oligonucleotides by pH-controlled extraction. *Biotechniques*

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Jamal M. Khaled, Fahd A. Al-Mekhlafi, Ramzi A. Mothana, Naiyf S. Alharbi, **Khalid E. Alzaharni**, Anwar H. Sharafaddin, Shine Kadaikunnan, Ahmed S. Alobaidi, Noofal I. Bayaqoob' (2017). Biological activity of *Brevibacillus laterosporus* isolated from the digestive tract of a honey bee, *Journal of Beneficial Microbes*

Masilamani, V. **AlZahrani, K**., Devanesan, S., AlQahtani, H., & AlSalhi, M. S. (2016). Smoking Induced Hemolysis: Spectral and microscopic investigations. *Nature Scientific reports*,.

AlZahrani, K., & Al-Sewaidan, H. A. (2016). Nanostructural Changes in the Cell Membrane of Gamma-Irradiated Red Blood Cells. *IJHBT*,.

Alharbi, N. S., Khaled, J. M., **Alzaharni, K. E**., Mothana, R. A., Alsaid, M. S., Alhoshan, M., ... & Alobaidi, A. S. (2016). Effects of Piper cubeba L. essential oil on methicillin-resistant Staphylococcus aureus: an AFM and TEM study. *Journal of Molecular Recognition*.

Al-Biladi, T. R., Al Dwayyan, A. S., Khan, M. N., Qaid, S. M., & **Al Zahrani, K.** (2016). Structural and Spectroscopic Characterization of PM 597 Dye-Silica Core-Shell Nanoparticles. *Journal of Spectroscopy*.