Investigating the Binding Capabilities of Triazole-Calix[4]arene Functionalized Microcantilever Sensors Towards Heavy Metals in Aqueous Solution (*MSc Thesis Seminar)*

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ABSTRACT: The main objective of this work was to investigate the binding capabilities of the newly synthesized bimodal triazole-calix[4]arene functionalized microcantilevers towards selected heavy metals in aqueous solution. Gold-coated microcantilever sensors were first modified with a self-assembled monolayer of calix[4]arene. Selected target metal ions (e.g. Hg^{2+}, Fe^{2+}, Ni^{2+}, Zn^{2+}, and Pb^{2+}) were then introduced into a cell containing the functionalized microcantilevers. The interactions between the calix[4]arene-functionalized microcantilevers and the target analytes resulted in the formation of a differential surface stress which, in turn, resulted in a mechanical deflection of the microcantilever. Results showed that microcantilever arrays modified with triazole-calix[4]arene were capable of detecting trace concentrations of Hg^{2+}ions as low as 10^{-11} M, which is sufficiently low for most applications. Results also showed that triazole-calix[4]arene functionalized microcantilevers were capable of detecting the presence of different heavy metal ions with high sensitivity and selectivity.

This is a MSc final presentation and graduate students from our department are especially encouraged to attend.

ALL ARE WELCOME!