

Mahidol University International College

MUIC MATHEMATICS SEMINAR

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Title: *Mathematical methods on atomic force microscope cantilever systems*

Abstract

Brief introduction on an atomic force microscope will be given. Here, we utilize mathematical modelling, comprising Lennard-Jones potential and techniques involving calculus of variations, to obtain the energy equations arising from the probe and the substrate, leading to the deflection equations of the cantilever. We assume a silicon tip and the substrate surface is assumed to be a graphene sheet. The spring constant and the bending behaviour of cantilever system will be discussed.