

# **Micromechanical Sensing for Real Time Monitoring of Filamentous Fungi Growth**

Conventional culturing methods used in industrial and clinical settings for the detection and monitoring of filamentous fungi growth are time consuming and labour intensive. Since the early 1990s the use of cantilevers for biological measurements has risen dramatically. Advances in semiconductor fabrication technologies has resulted in the reproducible production of high quality cantilever arrays. Cantilevers operated in 'dynamic mode' act as biological sensors where growth of fungal spores results in measurable resonance frequency shifts. Hence, these sensors act as ultra-sensitive 'mass balances'. Despite this high sensitivity there have only been a limited number of incidences where cantilevers have been employed for the real time monitoring of microorganism growth. Microcantilever based devices developed for the rapid real time monitoring of filamentous fungi are presented. The use of these devices for antibiotic susceptibility testing as well as the attempted implementation of piezoresistive cantilever arrays will also be discussed.