

Abstract Submitted  
for the MAR06 Meeting of  
The American Physical Society

**Multivariate statistical analysis of Raman spectra to distinguish normal, tumor, lymph nodes and mastitis in mouse mammary tissues**  
H. DAI, J.S. THAKUR, G.K. SERHATKULU, A.K. PANDYA, G. W. AUNER, R. NAIK, D. C. FREEMAN, Wayne State University, V.M. NAIK, University of Michigan-Dearborn, A. CAO, M.D. KLEIN, R. RABAH, Childrens Hospital of Michigan, Detroit, MI — Raman spectra ( $> 680$ ) of normal mammary gland, malignant mammary gland tumors, and lymph node tissues from mice injected with 4T1 tumor cells have been recorded using 785 nm excitation laser. The state of the tissues was confirmed by standard pathological tests. The multivariate statistical analysis methods (principle component analysis and discriminant functional analysis) have been used to categorize the Raman spectra. The statistical algorithms based on the Raman spectral peak heights, clearly separated tissues into six distinct classes, including mastitis, which is clearly separated from normal and tumor. This study suggests that the Raman spectroscopy can possibly perform a real-time analysis of the human mammary tissues for the detection of cancer.

V.M. Naik  
University of Michigan-Dearborn

Date submitted: 07 Dec 2005

Electronic form version 1.4