

An Analytical System for Multilayer Surface Plasmon Resonance Signal

C. Y. Huang¹, C. W. Lin², T. S. Kou^{1,2}

¹Department of Electrical Engineering, National Taiwan University, Taipei, Taiwan

²Institute of Biomedical Engineering, National Taiwan University, Taipei, Taiwan

Abstract: It is essential to characterize the optical properties of multiplayer organic and inorganic thin films for the purpose of optical biomolecule detections. However, the complete system would also require prediction procedure for the intended sample on interest. Surface plasmon resonance is an optical phenomena that can probe the vicinity of interface with high sensitivity. This paper thoroughly describes the theory and extends to the applications of multiplayer thin films. It provides a database of various materials used as thin films, which include metals, semiconductors, insulators, and compounds. A ringer solution is suggested as calibration standard to normalize the spectra for optical parameter (n, k, d) best fitted by nonlinear multiple regression.

Keywords: Surface plasmon resonance, thin film, biochip