SUM FREQUENCY GENERATION IN A CO-PROPAGATING BEAM GEOMETRY FROM THIN FILMS

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Sum Frequency Spectroscopy (SFS) is a surface specific non-linear pulsed laser technique capable of providing detailed molecular level orientation and conformational information of interfacial species. Application of the technique to thin film structures results in complex spectra which require deconvolution. We have developed a new theoretical model for SF emission from thin film surfaces. In the co-propagating beam geometry, three dominant periodicities describing the relationship between film thickness and SF intensity are found. Seven additional periodicities are simulated if further sources of SF generation are considered. Specific substrates are presently being prepared for experimental verification of the model's predictions.