SURFACE ENHANCED RAMAN SCATTERING STUDY ON THE GEOMETRY OF ADSORBED THIN FILM

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We describe an experimental investigation of controlling the optimal geometrical arrangement compact packing for the adsorbed ultra-thin film by depletion interaction between the adsorbent and the metal wall.[a] Bipyridine, a polymer of amino acids, and an engineering polymer were found to form ordered structures which covered silver and copper surfaces, respectively, after adding depletant of low molecular weight poly(ethylene glycol) into their solutions in ethanol. The adsorbed ultra thin layers on metal were investigated by SERS spectroscopy which provided information about morphology of adsorbed species in molecular level. Bipyridine, a polymer of amino acids, and an engineering polymer were found to forming ordered structures which covered silver and copper surfaces, respectively, by adding low molecular weight poly(ethylene glycol) (PEG) into their solutions in ethanol. The PEG-mediated depletion interaction with the wall was contributed to the entropic force to supramolecular assembling of these adsorbents on metal substrates.

[a] Yodh, A. G.; Lin, K. H.; Crocker, J. C.; Dinsmore, A. D.; Verma, R.; Kaplan, P. D. Phil. Trans. R. Soc. Lond. A 2001 359,921