SURFACE-ENHANCED PHOTOCHEMISTRY OF P-NITROBENZOIC ACID ON AG COATED AU COLLOIDAL METAL FILMS AT 633 NM.

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Surface enhanced Raman scattering (SERS) was used to probe the 633 nm photoreduction of *p*-nitrobenzoic acid (PNBA) to azodibenzoate on Ag and Ag coated Au colloidal metal films. The variation of the photolysis rate was determined by monitoring the growth of the $1470cm^{-1}$ N=N stretch of the photoproduct (azodibenzoate) compared with the $1600cm^{-1}$ aromatic quadrant stretch of the PNBA. The rate was determined from the ratio of the $1470cm^{-1}$ band to the $1600cm^{-1}$ band as a function of time. The rate was found to be much larger on bare Ag colloidal metal films than on Ag coated Au colloidal metal films, and to decrease as a function of the Ag coverage. These changes in the observed photoreduction rate are consistent with an electromagnetic enhancement mechanism.