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STUDY OF HYDROGEN ADSORPTION-DESORPTION KINETICS ON ORDERED $Cu_3Pt(111)$ AND DISORDERED Pt/Cu(111) SURFACE ALLOY, JIN-HYO BOO, SOON-BO LEE(Dept. of Chemistry, Sung Kyun Kwan University, Suwon 440-746, Korea), RALF LINKE, CONRAD BECKER, UWE SCHRÖDER, and KLAUS WANDELT(Institute of Physical and Theoretical Chemistry, University of Bonn, Wegelerstr. 12, D-53115 Bonn, Germany)

The adsorption-desorption kinetics of hydrogen on ordered $Cu_3Pt(111)$ bulk alloy surface and 0.25 ML Pt-covered Cu(111) surface alloy has been studied by AES, TDS, and work function change measurements ($\Delta\Phi$). Adsorption and dissociation of hydrogen proceed via platinum sites. H_2-TDS data suggest that these processes display second order kinetics with respect to the number of Pt-sites available. The desorption spectra obtained experimentally have been successfully simulated using a lattice gas model. From the simulations, the desorption and interaction energies could be deduced showing a weak hydrogen-hydrogen repulsion. H-induced work function changes on both surfaces obtained during hydrogen adsorption always show a positive in contrast to Pt(111) and Cu(111). This indicates the specific property of alloy surfaces which alter the electronic and structural properties of bimetallic surfaces.

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EFFECT OF PLASMA TREATMENT ON OPTICAL PROPERTIES OF POLY(ETHYLENETEREPHTHALATE) FILM

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Plasma treatment is one type of surface modification of polymer that is commonly used for the improvement of adhesion. The modification of transparent polymer film has considerable technological importance in the areas of display devices such as PLCD and touch panel. For the use of display devices, however, decrease of transmittance by surface treatment should be minimized. Therefore, we focused our attention to the effect of oxygen plasma treatment on optical properties of PET film.

Transmittance of plasma-treated PET film decreases in visible region. This seems to be associated with changes of morphology and chemical species on the film surface. The change of morphology with plasma treatment times increases the reflectance on film surface. Lower value of transmitance in short wavelength region is due to the shift of absorbance toward long wavelength, and this shift is caused by the C=O bond introduced by oxygen plasma treatment.

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PHOTOLUMINESCENCE INDUCED BY Si^--IMPLANTATION INTO SiO_2 LAYERS AT ELEVATED TEMPERATURES, H.B.KIM, C.N.WHANG(ASSRC & Dept. of Physics, Yonsei Univ., Seoul 120-749, Korea), S.IM, J.Y.JEONG, M.S.OH, (Dept. of Matallugical Engineering, Yonsei Univ., Seoul 120-749, Korea), and J.H.SONG (Advanced Analysis Center, KIST, Seoul 130-650, Korea)

Si negative ions were implanted into 300 nm-thick SiO_2 layers at room temperature and elevated temperatures with the various energy, 55~100 keV at doses of 3×10^{16} cm^{-2}. The result of the PL measurements show an broad luminescent band around 2.0 eV. The intensity of this peak for an elevated temperature sample was measured higher than that for the room temperature sample. This luminescences were gone after annealing at high temperature(>900 ℃). It appears that this luminescences originate form implantation-induced defects in SiO_2 layers.

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NANOCRYSTAL VS. DEFECT-RELATED PHOTO-LUMINESCENCE IN SiO_2 LAYERS IMPLANTED BY Ge AND Si IONS

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Photoluminescence (PL) from nanocrystalline Si has been a subject of considerable interests due to its potential application in Si-based optoelectronic devices. Si ions were implanted into thermally grown SiO_2 film (300 nm) on crystalline Si at energies of 30 to 55 keV, and with doses of 5×10^{15} and 1×10^{17} cm^{-2} at room temperature, and in the same way, Ge implantation was performed at 100 keV with a dose of 5×10^{16} cm^{-2} Implanted specimens were subsequently annealed in N_2 ambient at 500, 800, and 1100 ℃ during various periods. In the case of Si-implanted SiO_2, PL spectra shows that luminescence intensity clearly increases with annealing temperature, and that peak moves from an orange band (580 nm) to a red band (720 nm) after annealing at 1100 ℃. However in the case of Ge-implanted SiO_2, PL spectra only around 580 nm are observed from the both as-implanted sample and post-annealed samples. Resulted luminescences are probably related to radiative defects or nanocrystals formed in SiO_2. For confirming above results, XPS, high power XRD and cross-sectional TEM will be performed and the results are to be discussed later in detail.

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