antimony, arsenic, or bismuth form well-ordered surface monolayers on GaAs and InP (110). The vibrations of adsorbate atoms on the surface can be detected using Raman spectroscopy. This technique provides a powerful chemical probe of the surface composition and can be used to detect surface reactions.

Ref. 100 "SURFACE CHARACTERIZATION OF CALCIUM-STABILIZED ZIRCONIA FILM BY X-RAY PHOTOELECTRON SPECTROSCOPY", Ester O. Bensadon 1 , Pedro A. P. Nascente 2 , Humberto A. Carmona 2 , Ernesto C. Pereira 1 and Luis O. S. Bulhões 1 , (1) LIEC/DQ/UFSCar, São Carlos, SP, (2) CCDM/DEMa/UFSCar, São Carlos, SP.

Stabilized cubic zirconia is a ceramic material which has special application in oxygen sensors. This material is conventionally stabilized in the cubic phase with the addition of CaO, Y2O3 or MgO and high sintering temperatures. Recently, calcia-stabilized zirconia has been obtained by anodic oxidation of metallic zirconium in electrolytes containing anionic complex of calcium, at room temperature. In the present work, we investigated the surface chemistry of zirconia obtained by this new process by X-ray photoelectron spectroscopy (XPS). We measured the main photoelectric lines of Zr, O, Ca e C (contaminant) using high energy resolution and detected the presence of zirconia (ZrO2) and calcia (CaO). We also encountered N, Na and P in the film surface, these are residues of the fabrication process. We also sputtered the film with Ar ions to remove surface layers and measured the film composition as a function of the depth in the film (sputtering time). We observed that both ZrO2 and CaO concentrations in the film surface increased as function of the bombardment time, as a result of the removal of carbonaceous species.

Ref. 101 "INFLUENCE OF THE FLOW RATE ON PRECURSOR SPECIES CONCENTRATION DURING CVD DIAMOND GROWTH", Vladimir Jesus Trava-Airoldi[1,2*], Evaldo José Corat[1,2*], João Roberto Moro[2] and Nelia Ferreira Leite[1], 1)-LAS/INPE, São José dos Campos - SP., 2)-FE/USF, Itatiba, SP.

In order to expand the area of deposition, polycrystalline and thin CVD-diamond film as a new option and advantageous coating has played an important hole as the most hard protective material for many kind and shapes of surfaces. Structure properties concerning columnar and renucleation process of growth have been considered as a fundamental phenomena related to macro-parameters of diamond growth. The relationship among them is not very well understood. In this work an extensive study relating the columnar growth and the renucleation phenomena to the CVD diamond growth parameters is presented. An enhanced Hot Filament Assisted Technique and silicon as substrate have been used. Evidences about the diamond growth parameters and the amount of precursors near the substrate surface was found. SEM and Raman Scattering characterizations on substrate surface and on substrate cross section show a more comprehensive influence of concentration and residence time of the precursors near the surface substrate on polycrystalline CVD diamond structure.