beam evaporation are studied using both AES and electrical measurements. The C-V curves of MOS diode made by using GaAs single crystal have the typical characteristics. Its depth profile shows the uniformity of insulator and of insulator-semiconductor interface. The sample made from InP crystal has the C-V curves independent on the gate bias and phosphorus is rich in interface.

In addition, SiO film deposited on InP wafer by vacuum evaporation is also studied. This sample has good electrical properties and indicates both the small deviation from stoichiometry of InP and the pile-up of carbon at the interface.

2. The Piezoelectric Effect on Al-SiO-n-InP MOS Diode and Electrical properties of SiO Film

荒 井 真 介

The theory of change in capacitance caused by piezo-electric effect is extended to apply well in high frequency measurements. The theory extended is confirmed by using the Al-SiO-n-InP MOS diode in which the thin insulating SiO film is obtained from the vacuum evaporation of SiO chunks.

The surface state density is determined to be 8.5×10^{11} $ev^{-1} \cdot cm^{-2}$ by comparing the theoretical result with the experimental one. The dependence of electrical properties of the SiO film on the deposition condition is examined by the Al-SiO-Al MIM diode fabricated in ultra high vacuum system. The good insulating SiO film is obtained from the deposition rate of 1.4A/sec at the oxygen pressure of 5×10^{-5} Torr. The capacitance of film varies only by 10% in the frequency range from 30Hz to 1MHz and its resistivity is 10^{13} Ω-cm at the field strength of 10^6 V/cm. The compatibility of this deposition condition to make MIM diode with that to obtain the good InP MOS diode is also discussed.

SrS : Pb^{2+} 螢光体の発光中心

大 平 孝 明

SrS : Pb^{2+} 粉末螢光体の発光スペクトルと励起スペクトルを 80 K, 6 K, 4 K の各温度で測定した。発光スペクトルには, Pb^{2+} イオン内の $^3T_{1u} \rightarrow {}^1A_{1g}$ 遷移による発光帯の他に