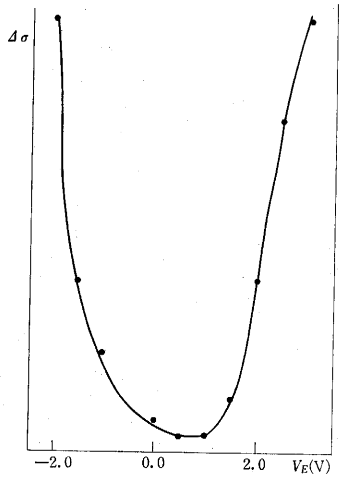
With this equation, the behaviour of the surface conductivity concerned with the surface potential can be treated qualitatively. In the accumulation layer, since the surface electron concentration becomes larger than that in the bulk, d*s* has the plus sign. In the strong inversion layer, the concentration of holes becomes very large, so d*s* is plus, too. On the contrary, in the depletion layer, since the carrier densities become small than those in the bulk, d*s* becomes to have the minus sign. Therefore, if d*s* is plotted against the surface potential, the whole aspects of the figure will show a bell-shaped curve[3].



V_E: electrode potential versus S.C.E.
$\Delta\sigma$: surface conductivity; scale is chosen on the arbitrary unit

Fig. 2 Change of the surface conductivity

The results of the experiment are shown in Fig. 2. Here, the abcissa is the electrode potential and the ordinate is the surface conductivity.

From the studies of germanium and silicon, it is known that the electrode potential is almost consumed in the space-charge layer[4][5][6]. That is to say, the electrode potential may be equivalent to the surface potential by the displacement parallel to the abcissa. However, to verify this argument and to find the relations between the electrode potential and the surface potential, we must deal this problem in a more quantitative way. In order to do this, it will be enough to calculate the surface carrier densities from the Poisson's equation and to exchange the value of the carrier mobilities in the bulk with those in the space charge layer. The results of this calculation will be presented in near future.

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正　誤　表 (12 月号)

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