

PREFACE

The present collective work is devoted mainly to studies of the effect of the surface state of semiconductors, principally germanium and silicon, on their electrical properties.

The volume includes contributions on the investigation, using various methods, of both clean surfaces and "real" surfaces covered with oxide films.

Studies of adsorption processes on clean surfaces and the influence of adsorbed oxygen on the electrical properties help to determine the mechanism of formation of oxide layers on the surfaces of germanium and silicon, as well as the mechanism of adsorption of various substances on semiconductor surfaces.

A considerable part of the volume deals with studies of the electrical properties of semiconductors governed by the existence of local electron states on the semiconductor surface.

Surface electron processes in semiconductors have been investigated in great detail in recent years and this is reflected in the present volume.

These processes are also of interest because they determine many properties of semiconducting devices. The poor reproducibility and stability of the surface charge and the surface recombination velocity make the parameters of these devices nonreproducible and unstable. However, the development of methods of surface treatment for semiconductors and semiconducting devices, which would ensure the desired stability and reproducibility of the surface properties, is possible only if the nature and laws governing surface electron properties are understood.

The volume consists of the papers read at the Conference on the Surface Properties of Semiconductors, held on June 5 and 6, 1961, at the Institute of Electrochemistry of the USSR Academy of Sciences, Moscow.

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