

Scientific session of the Division of General Physics and Astronomy and the Division of Nuclear Physics of the Academy of Sciences of the USSR (19–20 December 1979)

Usp. Fiz. Nauk 131, 513 (July 1980)

PACS numbers: 01.10.Fv

A joint scientific session of the Division of General Physics and Astronomy and the Division of Nuclear Physics of the Academy of Sciences of the USSR was held on December 19 and 20, 1979 at the P. N. Lebedev Physics Institute of the Academy of Sciences of the USSR. The following papers were delivered:

December 19

1. *K. O. Keshishev, A. Ya. Parshin, and A. V. Babkin*, Surface phenomena in He⁴ crystals.

2. *I. L. Landau*, Resistive phenomena in soft superconductors.

December 20

2. *V. P. Dzhelepov*, An experimental study of mu-catalysis of fusion reactions of hydrogen-isotope nuclei.

4. *L. I. Ponomarev*, The three-body problem with Coulomb interaction and the problem of muon catalysis of nuclear reactions.

Scientific session of the Division of General Physics and Astronomy and the Division of Nuclear Physics of the Academy of Sciences of the USSR (23–24 January 1980)

Usp. Fiz. Nauk 131, 513–519 (July 1980)

PACS numbers: 01.10.Fv

A joint scientific session of the Division of General Physics and Astronomy and the Division of Nuclear Physics of the Academy of Sciences of the USSR was held on January 23 and 24, 1980 at the P. N. Lebedev Physics Institute of the Academy of Sciences of the USSR. The following papers were delivered:

January 23

1. *V. M. Agranovich*, Spectroscopy of surface polaritons and the properties of the surface.

2. *Yu. A. Osip'yan*, Dislocational (quasi-one-dimensional) electrical conductivity in semiconductors.

January 24

3. *D. G. Lominadze, G. Z. Machabeli, A. B. Mikhailovskii, Yu. P. Ochelkov, and V. V. Ussov*, The nature of the high-frequency radiation of pulsars, and the activity of supernova remnants.

4. *A. A. Galeev and V. V. Krasnosel'skikh*, Plasma mechanisms of the magnetospheric radio bursts of Jupiter.

5. The last paper was accompanied by the following demonstrations: a film entitled "Dynamics of the Jovian Atmosphere from Voyager-1 Data."

6. A recording of "Sounds of Jupiter."

Brief contents of four of the papers are published below.

V. M. Agranovich. Spectroscopy of surface polaritons and the properties of the surface. With the development of research in surface physics, much attention has been given in recent years to study of various properties of surface electromagnetic waves—surface polaritons (SP). Waves of this kind are capable of propagation along the surfaces and interfaces of media, and their dispersion law is determined not only by the dielectric permittivities of the contacting media, but also

by features in the elementary-excitation spectrum in the transitional layer.¹ Since the properties of the medium near the surface are, generally speaking, different from its properties in bulk, transitional layers are always present and, depending on the nature of the interaction, have thicknesses that vary within rather wide limits for different materials: $d \approx 10 \text{ \AA}$ to $d \approx 100\text{--}1000 \text{ \AA}$. The presence of a transitional layer influences the SP spectrum, and this, by itself, opens