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# SOVIET RESEARCH ON TRAVELING-WAY. TUBES

Information from overt Soviet periodical literature indicates that at presont at least three groups in the USSR are conducting research on traveling-wave

The most active of these groups, judged from the number of papers published, is located at the Physics Institute of the Moscow State University. This group is apparently led by V. M. Lopukhin, since he is author or coauthor of each paper, and is apparently under the over-all supervision of Professor S. D. Gvozdover, since he is thanked in each case by the authors. The Moscow State University scientists have been concerned primarily with the type of structure used to obtain reduced phase velocity of the electromagnetic waves in the traveling-wave tube. They have also analyzed the effects of the velocity distribution of electrons in the stream. Fapers published by scientists in this group are listed in the appended bibliography under Group I.

A second group, apparently headed by A. I. Akhiyezer, since he is coauthor of each paper, is conducting research on traveling-wave tubes at the Physicotechnical Institute of the Academy of Sciences Ukrainian SSR. These scientists have been analyzing the operation of a traveling-wave tube, the feature of their analysis being the assumption that the actual delaying device can be replaced by some medium with an effective dielectric constant greater than unity. Papers published by scientists in this group are listed in the appended bibliography under Group II.

Research on traveling-wave tubes is also being conducted by a group consisting of L. N. Loshakov and Ye. B. Ol'derogge. These men have been studying the effectiveness of a coaxial spiral line as a device for slowing down electromagnetic waves. No indication of the present location of this group has been found, but Soviet Men of Science (CIA/CD 1) lists Loshakov as a member, in 1945, of the Scientific Research Laboratory of Artillery Apparatus Construction of the Red Army. Papers published by Loshakov and Ol'derogge are listed in the appended bibliography under Group III.

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