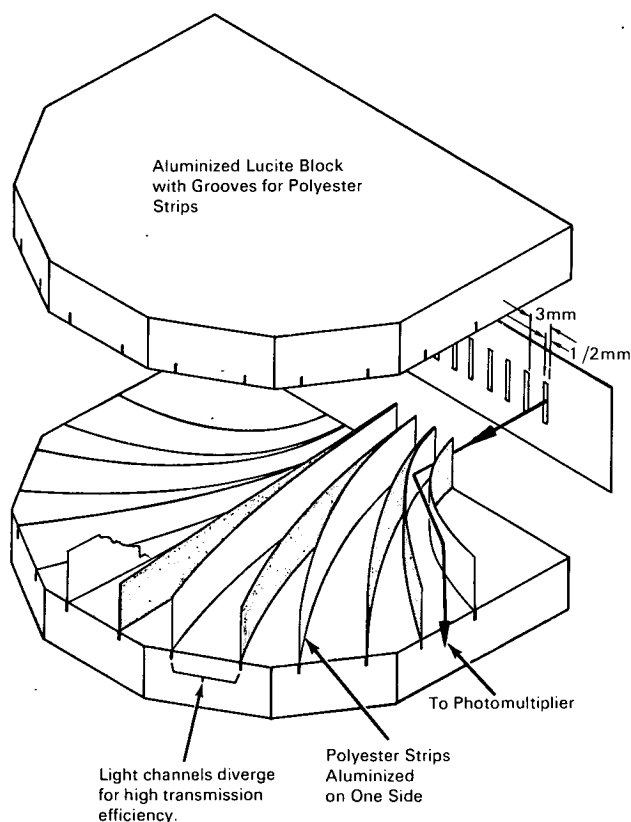


NASA TECH BRIEF



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Multichannel Spectroscopy Guide



The problem:

To simultaneously record, photoelectrically, the intensities of several closely-spaced narrow wavelength areas (for instance, in the ultraviolet and infrared) of the light spectrum. In cases such as shock-tube work, which impose severe restrictions on the time available to obtain the data, it is not practical to scan the spectrum with a single photomultiplier

and a separate detector must be used for each wavelength area to be investigated.

The solution:

A system that makes use of diverging duct walls for conducting the light from the entrance slits to the conductors by means of multiple reflectors. These ducts consist of polyester strips aluminized on the inner sides to provide light paths with minimum absorption losses in the ultraviolet and infrared areas of the spectrum. These strips are mounted in matching, grooved, aluminized blocks that maintain proper alignment of the ducts for optimum light delivery to the various photomultiplier tubes.

This arrangement is designed for the study of continuous spectra so that the wavelength interval accepted by each channel can be changed by using different masks and different slit widths in the spectral plane. A variation for the simultaneous measurement of the intensities of randomly displaced spectral lines can be readily accomplished by making each duct self-contained and movable.

Note:

Requests for further information may be directed to:
 Technology Utilization Officer
 Headquarters
 National Aeronautics
 and Space Administration
 Washington, D.C. 20546
 Reference: B69-10550

Patent status:

No patent action is contemplated by NASA.

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 Category 01