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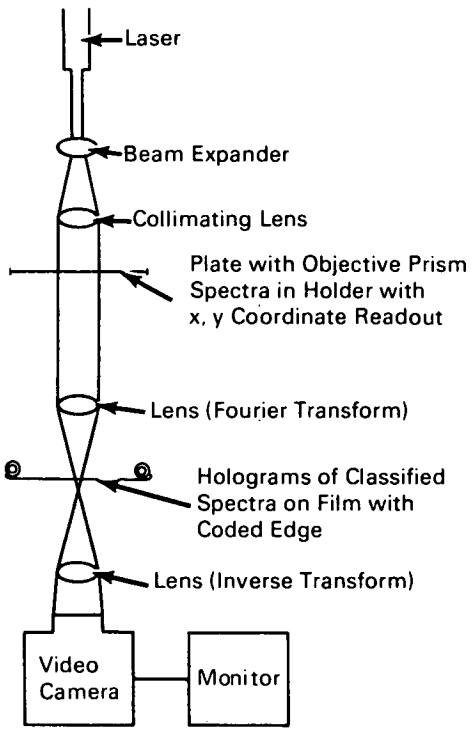
NASA TECH BRIEF

Stellar Spectrum Classifier



Classifier of Objective Prism Spectra of Stars

An apparatus has been designed to assist in classifying the spectra of stars photographed through an objective prism. With this apparatus, classification of the stars is made easier and more accurate. As shown in the figure, a photographic plate is placed in a holder which has an x-y coordinate readout to measure the relative positions of the spectra of stars on the plate. Collimated light from a laser passes through a spectrum on the plate, through a Fourier-transform lens, and then through an edge-coded film strip which contains complex-conjugate holograms of classified, representative stellar spectra. The film strip is moved until a hologram is reached which correlates with the Fourier transform of the spectral image. When this occurs, maximum energy passes through the hologram, through the inverse-transform lens, and into the video camera, causing a spot to appear on the monitor.

Notes:

1. Used in conjunction with wide-field telescopes, stellar classification will be accelerated by the proposed system, since holograms are required only of the relatively few classified spectra, a small number in comparison to the large number of prints on file.
2. No additional documentation is available. Specific questions, however, may be directed to:
   Technology Utilization Officer
   Manned Spacecraft Center, Code BM7
   Houston, Texas 77058
   Reference: B70-10319

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

Source: J. H. Reid of
Lockheed Electronics Company
Houston Aerospace Systems
under contract to
Manned Spacecraft Center
(MSC-13450)

Category 03