OAO OBSERVATIONS OF SCO X-1*

R. C. BLESS, A. D. CODE, T. E. HOUCK, C. F. LILLIE, and J. F. McNALL
Space Astronomy Laboratory, Washburn Observatory

On several occasions in the past month we attempted to observe the bright X-ray source in Scorpio using the OAO 8-inch photometers. These instruments isolate ultraviolet spectral bands by means of interference filters which have half-widths of about 300 Å. Digital and analog outputs both are available and integration times of 8 and 64 sec were used. The length of observing time was about 30 min per orbit. Sky background measurements about 30 arc min away from Sco X-1 source were interspersed with those of the X-ray source, enabling the large contribution of the background to be subtracted. These OAO observations are near the limit of our equipment and are therefore rather noisy. A sudden increase in the intensity of Sco X-1 less than 25% would be undetectable in the OAO photometers. During the observations described here, which were made on April 9, 11^h14^m UT to 11^h43^m UT, simultaneous observations were made by Dr. Jerome Kristian with the 200-inch telescope and multichannel photometer. Kristian observed a slow decrease in the flux from Sco X-1 during the first several minutes of simultaneous observations. We also observed such a decrease in intensity but did not see a 10% flare which the 200-inch saw at 5550 Å.

OAO filter photometry was obtained in 9 bands from 3300 Å to 1380 Å (Ly-α excluded). After correcting for interstellar extinction of 0.23 magnitudes in (B − V) and using the interstellar extinction curve in the ultraviolet given in *Astrophys. J.* **153**, 561, we found that in frequency units the spectrum over this interval was essentially flat. The flux was about 1.5×10^{-24} ergs/cm^2/sec/cycle/sec. The 200-inch observation at 5550 Å is slightly more than one-half this value. These preliminary results are consistent with free-free radiation from a hot gas.

Additional OAO observations of Sco X-1 are underway.

* Communicated by Dr. W. L. Kraushaar.

L. Gratton (ed.), Non-Solar X- and Gamma-Ray Astronomy, 176.