$$\tau = \frac{2}{B} \left(\frac{s}{N} \right)^2 \left(\frac{\Delta f}{4T_s \delta f} \right)^2 (T_s + T_R)^2, \quad (2)$$

where the symbols have their usual definitions in spherical and radio astronomy.

The total annual hydrogen line Doppler shift for a source on the ecliptic is of the order 3×10^5 cycles. Thus the accuracy with which the parallax may be determined becomes $\delta f / 3 \times 10^5$. A new hydrogen line radiometer is being designed and developed, funded by the National Aeronautics and Space Administration. The performance goal for the radiometer is $\delta f = 1$ cycle, leading to an accuracy goal of about one part in 3×10^5 for the solar parallax. The solar parallax observational program will extend over several years and will be conducted at the Naval Research Laboratory and at Agassiz Station of Harvard College Observatory.

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Mayer, C. H. and Sloanaker, R. M. *Polarization of the 10-cm radiation from the Crab Nebula and other sources.*

A search was made for linearly-polarized components of the 10.2 cm radiation from the radio sources Cassiopeia-A (IAU 23N5A), Taurus-A, the Crab Nebula (IAU 05N2A), Cygnus-A (IAU 19N4A), Virgo-A (IAU 12N1A), and M17 (IAU 18S1A) using the 84-foot reflector at the NRL Maryland Point Observatory. Only the radiation from the Crab Nebula showed characteristics which could be interpreted as due to a plane-polarized component of the radiation.

The horn-type feed antenna at the focus of the reflector was rotated continuously about its axis by a motor drive causing the plane of polarization accepted by the antenna to rotate. After correction for instrumental effects, no plane-polarized component greater than 1 per cent was detected in the radiation of Cas-A, Cyg-A, or M17. The lower intensity of the radiation from Virgo-A did not allow as good precision of measurement, but an upper limit of about 3 per cent can be placed on a linearly-polarized component. The Crab Nebula showed a distinctly different result from the other sources which can be interpreted as a linearly-polarized component of about 3 per cent of the total radiation with a position angle for the electric vector of about 135 degrees.

The sources Cas-A, Cyg-A, and the Crab Nebula were measured at two other wave lengths as well, 11.3 cm and 11.5 cm. The results were similar at the three wave lengths indicating that there is little Faraday rotation along the path between the Crab Nebula and the earth. This conclusion is supported by the close agreement between these measurements of position angle at 11.5, 11.3, and 10.2 cm with those previously measured at 9.6 cm (Kuz'min and Udal'tsov 1959), at 3.15 cm (Mayer, McCullough, and Sloanaker 1957), and the average position angle measured optically (Oort and Walraven 1956).

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McClain, Edward F. *A test for non-thermal radiation from Jupiter at a wave length of 21 cm.*

Measurements of the radiation temperature of Jupiter have been made in the vicinity of 3 centimeter wave length by Mayer, McCullough, and Sloanaker (1958), Drake and Ewen (1958), and Alsop, Giordmaine, Mayer and Townes (1958). These measurements are all in reasonable agreement with measurements made in the infrared. The consensus of opinion therefore has been that the source of this radiation is probably thermal. Later, McClain and Sloanaker (1959) reported temperatures of approximately 600°K from Jupiter at a wave length of 10 cm. These measurements were slightly suggestive of rather rapid variations in the measured temperature as a function of time. Drake reported informally at the May 1959 URSI meeting on temperatures in the range of 2000 to 3000 degrees Kelvin at a wave length of 21 cm and suggested that this radiation might arise from Van Allen belts surrounding the planet. Stanley (1959) has measured temperatures as high as 5000°K to 10,000°K at 32 cm.

This paper deals with a series of measurements at 1430.00 Mc made on 28 days during a one-month period from May 14 to June 18, 1959. An attempt has been made to correlate what may be a variable temperature with the density