data. Within the resolution of the dipole antenna the galactic radiation was found to be almost isotropic at 327 MHz with maximum differences of the order of a few percent. The radiation appears to be more isotropic at the lower frequencies. The maximum radiation was found to lie on the great circle containing ecliptic longitude 190° and 190°. The areas of the galactic poles fall on this circle about 30° from the spin plane. Utilizing the spacecraft’s spin a strip scan of the galactic radiation along the great circle was obtained. The dipole antenna is presented for IS fluctuation between 210 kHz and 2500 kHz. The variation in the anisotropy is related to the maximum distance from which the radiation can be observed before being completely absorbed by the interstellar ionized hydrogen gas.

03. 327 MHz Observations of the Galactic Center: Possible Detection of a Deuterium Absorption Line. D. A. Cesarsky, A. T. Moffet, Owens Valley Radio Obs., CITA, Pasadena, Calif. and J. M. Pasachoff, Williams College-Hopkins Obs., Williamstown, Mass. We have observed the spectrum of radiation from the galactic center in the vicinity of the deuterium ground state hyperfine transition. With -100 hours of observing time the spectrum shows r.m.s. fluctuations -7 x 10^-3 of the source power level. An absorption feature at 327.388372 GHz (corrected to the local standard of rest) has a depth of 2 x 10^-4 of the continuum level. This feature is probably the deuterium line and has a velocity of -3.7 km/s. A discussion is included of the abundance of interstellar deuterium relative to hydrogen and of the difficulties in calculating these uncertainties include the optical depth of the corresponding hydrogen absorption line, which is saturated, and the distribution of absorbing clouds across the continuum source.

04. Supernova Observational Radio Telescope. S. A. Colgate and B. A. Blevins, New Mexico Institute of Mining & Technology, Socorro, NM. We propose to search for dispersed electromagnetic pulses from distant supernovae with a 20-beam radio telescope at 1.4 x 10^8 Hz and antenna gain of 100 x 4. On the basis of the expected magnetic field of pulsars and the frequency of supernovae, we expect about 1 event per month from galaxies at 70 Mpc. The expected number of galaxies at this size can be searched conventionally for a supernova that would rise to optical maximum in a week to ten days. Each of the right circularly polarized feeds (7 to a parabolic dish) feeds a 2-stage parametric amplifier, 50 MHz bandwidth, and then various stages of postamplification before being mixed with itself delayed by 4 meters equivalent. Dispersed pulses then appear on oscilloscopes as low frequency oscillations corresponding to the varying frequency of the signal.

05. Interferometry, Scintillation, and Minimum Angular Diameter. W. M. Cronyn, Space Environ. Lab., NOAA, Boulder, Colo. and M. H. Cohen, Owens Valley Radio Obs., CITA, Pasadena, Calif. We have investigated *scattering phenomena which can influence the apparent angular size of a radio source, and find that the structure, velocity, and distance of irregularities, the intrinsic angular size of the source, and the coherent bandwidth and integration time of the receiver system must all be considered. For a scattering medium with a point source a point source will always have unity time-averaged visibility with any interferometer provided two conditions (1) the bandwidth is less than the coherence bandwidth for IS and (2) the coherent integration time is less than the time scale of IS. In the absence of these conditions the apparent angular size becomes the "scattering angle". A finite source will appear at its intrinsic size (provided conditions (1) and (2) are satisfied) unless it is larger than the critical size for the quenching of IS. In this case the apparent size is the scattering angle or the intrinsic size, whichever is larger. For a weak scattering medium (weak IS for a point source even if conditions (1) and (2) are both satisfied) the limitations on maximum bandwidth, coherent integration time, and intrinsic source size are all increased relative to those for IS. These considerations have practical implications for the interpretation and planning of interferometer experiments.

06. The Effect of Loop III on Interstellar Neutral Hydrogen. F. Enns and L. Verschuur, Radio Astronomy Observatory. Observations of neutral hydrogen along Loop III in the galactic longitude region 152° < l < 167°, 421° < b < 431° are presented. An analysis of the velocity distribution of the gas shows that Loop III strongly affects the motion of the gas along its continuum ridges, but not in a way which could be explained by a supernova phenomenon.

07. High Resolution Interferometry of Small Diameter Supernova Remnants. B. A. Fermam and John R. Dickel, Univ. of Ill. Obs. - Polarimetric aperture synthesis observations have been made of the supernova remnants (SNR) Tycho, Kepler, 3C90, and the Cygni source using the 3-element interferometer of the NRAO at a wavelength of 1 cm. The results show that Kepler's SNR is a fairly thick shell source with a shell thickness-to-radius ratio of about 0.5. There is no correlation of the features in the radio shell with the optical filaments which do not appear to be part of the expanding shell. For Tycho's SNR, the previously known shell structure has been confirmed and considerable fine structure is apparent. Analysis of the polarization results shows a radial elongation of the magnetic field lines and the mean percentage polarization appears to decrease with increasing total intensity of features in this source. In contrast, 3C90 has a reasonably smooth total-intensity distribution but a much more irregular distribution of its polarized intensity and a generally high percentage polarization throughout.

08. High Resolution Observations of a Solar Active Region at 3.71 and 11.1 cm Wavelength. R. H. Bowers, S. D. Jordan and S. F. Maan, Laboratory for Solar Physics, and W. J. Webster, Jr., Laboratory for Meteorology and Earth Sciences, NASA-Goddard Space Flight Center, Greenbelt, Maryland 20771. During 11 October to 6 November 1972, we observed McMath Region 12094 regularly from sunrise to sunset. The data were taken at 3.71 and 11.1 cm wavelengths simultaneously using the NRAO three-element interferometer in the 2.7 - 1.6 - 0.9 km configuration. The minimum fringe spacing is 2.8 and 8.5 arc sec at 3.71 and 11.1 cm, respectively. The fringe amplitudes and phases that were observed show that there was significant structure in the active region at both wavelengths and for all spacings. These observations of structures of size less than 2.8 arc sec confirm our earlier results of 16 January 1972 which suggested the existence of small-scale features in the upper chromosphere or lower