The density of radio sources in the galactic core is 5.4 ± 1.2 (p.e.) times the local density near the sun; and the average emission in our part of the Milky Way system is 1.1×10^{-39} erg cm⁻³ sec⁻¹ (c/sec)⁻¹. Superposed on the smooth radio galaxy are two additional features: first, a constant component with brightness temperature about 450°K, to be identified with the spherically distributed excess radiation discovered by Westerhout and Oort; second, an asymmetric component in the anti-center directions, probably originating from HII clouds in the Morgan-Osterbrock-Sharpless spiral arm that passes three hundred parsecs exterior to the sun.

The density distribution in the z -direction is assumed, as a first approximation, to follow a Gaussian law. In the nuclear part of the galaxy, the decay-rate at right angles to the galactic plane is about five times as rapid as in the plane. In the solar neighborhood, the decay ratio is only three.

An unknown fraction of the 450° spherical excess is extragalactic in origin. The calculated temperature due to other galaxies radiating more or less like our own is found to be small compared with this value. A brief discussion centers on several extragalactic effects that may contribute to an increase of the calculated temperature.

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Wyller, Arne A. Vibrational transition probabilities for the C₂ Swan bands.

Reliable values for the vibrational transition probabilities are of great importance in the determination of vibrational temperatures for late-type stars. The purpose of this investigation has been to obtain improved theoretical values pertaining to the C₂ Swan bands.

Dr. Ta-You Wu has recently adapted to this particular problem the WKB-approximation of wave mechanics. With this method it is possible to construct vibrational wave functions utilizing any potential function for the nuclei. The potential function of Hulburt and Hirschfelder was chosen, being more accurate than the commonly used Morse potential. J. G. Phillips' determination of the molecular constants for the electronic levels has been adopted throughout.¹

Ten vibrational wave functions were constructed on the basis of the above method, two sets of five, with vibrational quantum numbers ranging from zero to four. The vibrational transition probability is proportional to the square

of the integral over the wave functions for the levels involved in the transition. The integrals were evaluated by graphical methods with the aid of an IBM electronic computer. The wave functions are properly normalized decreasing the values of the transition probabilities by 1-10 per cent. The results give improved agreement with the experimental values of R. King² notably in the +1 and -1 sequences.

1. *Ap. J.* **108**, 434, 1948.

2. *Ap. J.* **108**, 429, 1948.

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Yoss, Kenneth. Photometric and spectrophotometric observations of periodic comet Schausmasse.

Observations of comet Schausmasse were made with the Curtis Schmidt telescope of the University of Michigan between February 22 and April 30, when the comet was from 1.2 to 1.6 A.U. from the sun. In addition to the photographic observations, photoelectric observations were made by William Liller on one night, February 24, showing a bright nucleus, surrounded by a fainter coma extending about 80' from the nucleus. Half the intensity of the nucleus was reached at a radius of 20'.

Four direct plates on 103a-O emulsion and two on 103a-E emulsion with a Wratten 22 filter were obtained. On the first blue plate a faint, very narrow tail about 2° long is visible. In addition the coma, extending to about 15', appears asymmetrical, with a broad but definite tail extending in a direction some 30° or more from that of the narrow tail. Microphotometer tracings of that and the remaining three blue plates show that the asymmetry of the coma remains essentially the same, with no significant change in the intensity gradients of the coma or of the broad tail. The tracings show that the asymmetry of the inner part of the coma coincides with the direction of the narrow tail, with only the fainter outer parts deviating 30°.

The two red plates show a greater asymmetry of the coma, the extension being in a direction 9° farther from the prolongation of the sun's radius vector than the blue tail. The intensity gradients of both the tail and the coma itself are steeper in the red than in the blue. In addition, the red tail is itself asymmetrical, fading less rapidly on the side farthest from the radius vector.

Five of the objective prism plates were on