

## A. National Perspectives

## SCIENTIFIC CONTRIBUTION OF WOMEN IN SOVIET RADIO ASTRONOMY DURING THE LAST 12 YEARS

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It is very difficult to estimate the scientific contribution of any research in any scientific domain. The real scientific value of published scientific results usually becomes apparent after 10 years or so. This is why in this work we used a formal approach to estimate the scientific contribution of women in Radio Astronomy during a definite time period. To this end I used the Proceedings of the All-Union conferences on Galactic and Extragalactic Radio Astronomy<sup>1,2,3,4</sup> which are held every four years in the (now non-existent) Soviet Union, and which have represented all the radio astronomy scientific orientations. I have analyzed this information for the period 1979–1991. I have paid special attention to the relative quantity of papers presented by women and by men to determine the effectiveness of the work of women in radio astronomy.

In Fig. 1 I show as function of time (years 1979–1991) the total number of women presenting contributions (dotted line) and the relative number of women to men presenting contributions in % (solid line). We can see that the number of women actively working in radio astronomy changes from 16 to 25, and their ratio relative to men varies in the 10.4% to 14.4% range for different years. There is no obvious tendency showing an increase or decrease of women engaged in this scientific discipline.

**Figure 1.** Total number of women (N) engaged in radio astronomy in our country for the period 1979–1991 (dotted line); ratio (R) of the number of women to the number of men expressed in percent (solid line).

Even if in radio astronomy there is a whole series of scientific orientations, because of the small number of women engaged in radio astronomy, I have divided the field in two orientations only: galactic (G) and extragalactic (E) radio astronomy. These two orientations include between them all possible scientific radio astronomical orientations. In Fig. 2 I show the total number of papers presented by women engaged in galactic radio astronomy (G), and extragalactic radio astronomy (E) as a function of time. We can see that during the years 1979–1987 the ratio of women engaged in galactic to the number engaged in extragalactic radio astronomy was within the range 4.6 to 2.1, but that in 1991 this ratio became close to 1. It is to be noted that the interest of women towards extragalactic radio astronomy is constantly increasing, whereas the interest

in galactic radio astronomy has declined abruptly from 1987 to 1991. The number of men engaged in galactic versus extragalactic radio astronomy was also in the 3-to-1.6 range for the years 1979 to 1987, and for 1991 this ratio has again increased to 2.7. In Fig. 3 I show the relative number of papers by women to the number of papers by men in extragalactic and galactic radio astronomy as function of time. Fig. 3 reflects the tendencies I discussed before, from 1983 to 1991 a strong increase (3 times) of the ratio of papers contributed by women to that of men is noted for extragalactic radio astronomy.

**Figure 2.** Number of papers presented by women in galactic radio astronomy (G), and extragalactic radio astronomy (E).

**Figure 3.** Ratio of the number of papers presented by women to that by men in extragalactic (E) and in galactic (G) radio astronomy in percent.

In Fig. 4 I show the efficiency of scientific research work of men and women during the last 12 years. The efficiency was defined to be the average of the number of papers per person in one year. Fig. 4 shows that the efficiency is approximately the same for men and women, and it's average for the considered period of time was 1.79 for women, and 1.83 for men. It is extraordinary that in spite of a substantially larger workload in the family life (children, housework, shopping) women's efficiency is not worse than that of men. It is possible that if the home workload of women, which is particularly heavy in our country due to the absence of many worksaving devices, is decreased the efficiency of woman's work will increase and become higher than that of men. At least the potential for such an improvement exists.

**Figure 4.** Average number of presented papers per person per year by men (M) and by women (W) in the 1979–1991 time interval.

### ENDNOTES

- <sup>1</sup>XII Galactic and Extragalactic Radio Astronomy Conference Proceedings, 1979, Moscow.
- <sup>2</sup>XV Galactic and Extragalactic Radio Astronomy Conference Proceedings, 1983, Kharkov.
- <sup>3</sup>XIX Galactic and Extragalactic Radio Astronomy Conference Proceedings, 1987, Tallin.
- <sup>4</sup>XXIII Galactic and Extragalactic Radio Astronomy Conference Proceedings, 1991, Ashhabad.

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