SUB ARC SECOND COMPONENTS IN NEARBY BRIGHT GALAXIES AT METRE-WAVELENGTHS +

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150 nearby bright galaxies have been observed for compact components at 327 MHz by the method of Interplanetary Scintillation (IPS) using the Ooty radio telescope; scintillation was detected in 28 of these galaxies indicating compact components with size < 30 mas to 300 mas having flux density > 100 mJy. Comparison of our data with other results at high frequencies indicates that these compact components are associated with the central regions of the galaxies.

In Table 1 we present results on five Seyfert galaxies. In NGC 262 only the extended component of size 38 mas (50 mJy) at 18 cm seen by Jones et al. (81 Ap.J.,246,28) appears to be responsible for the scintillating flux; but, in NGC 1068 it is the smallest of the components of size $\sim$ 70 mas (85 mJy) at 2 cm seen by van der Hulst et al. (82 Ap.J., 261, L59) which seems to contribute to the scintillating flux at 92 cm. In NGC 1052, the compact component is very weak and shows an inverted spectrum.

Source	S_c(Jy)	Θ_c(mas)	Remarks
N 262	0.23 $\pm$ 0.06	< 100	Obs. at large elongation only.
N 1052	0.3 $\pm$ 0.15	$\sim$ 100	Inverted spectrum below $\sim$ 3 GHz
N 1068	1.0 to 1.5	100	Elongated in PA 200°
N 1275	4.6 to 5.6	$\lesssim$ 30	Multiple scintillating components;
3C 120	1.5 to 2.5	$\sim$ 50	may be variable

Table 1 IPS data on five Seyfert galaxies

In NGC 1275 and 3C 120, from the break in the IPS power spectra shown in Fig. 1 (a,b) it is clear that the structure of the scintillating components in these sources is complex. The total flux spectra of both the sources along with the spectra of compact components using VLBI data show the presence of two compact components; one of size $\sim$ a few mas, and the other $\sim$ 15 mas. Since the overall size of the source derived from the IPS spectra is < 30 mas it appears that the weak broad IPS

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spectrum (Fig.1a) arises due to the few mas component and the strong narrow spectrum, due to the 15 mas component. From this we have derived fluxes in both the components A and B (Fig.1c) at 327 MHz using the area under each part of the spectrum. Similarly, using available VLBI data we have derived fluxes for the two compact components in 3C 120 (Fig.1d).

From the above, it appears that it is possible to separate very compact components in radio sources at metre wavelength using the IPS method. More observations of similar sources as well as careful modelling of the source and solar wind parameters are necessary to establish the technique.

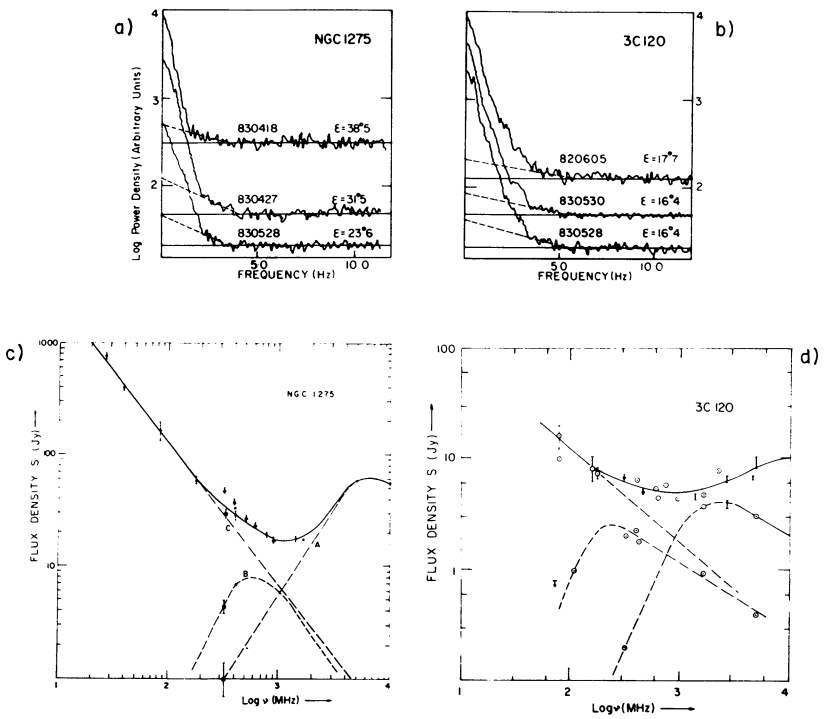

Fig.1.(a) and (b) : IPS power spectra
(c) and (d) : Flux density spectra

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