

which correspond to the scale, are the published number of events versus the missing mass. The full circles and full squares show the same data with magnified scale.

The narrow structure masses agree fairly well with the masses of narrow structures for the $pp \rightarrow p\pi^+$ and $pp \rightarrow ppX$ reactions studied at SPES3 (Saturne) [4]. Table 1 gives the quantitative information concerning the masses extracted from the previous figures, and the comparison with the masses from SPES3 cross-sections [4]. Nearly all peaks are visible in both experiments. At $\theta = 0.8^\circ$, the incident beam enters in the SPES4 spectrometer, preventing a possible confirmation of the lower mass structure at $M=1004$ MeV. At $\theta = 2^\circ$, Fig. 4, several peaks are observed above $M=1470$ MeV. Fig. 5 shows an enhanced plot of this missing mass range ($\omega \geq 800$ MeV). The same situation, with many structures, is observed in the SPES3 data [5, 6], and the masses observed in both reactions are consistent. The peak at $M=1394$ MeV, observed in the SPES4 experiment, was not seen in the SPES3 data, since such missing mass range lies between two incident proton energies. The statistical errors of the $p(\alpha, \alpha')X$ cross-sections, could not be larger than a factor of two, calculated from the statistical errors [14]. The error bars are therefore multiplied by a factor of two.

FIG. 3: Cross-section of the $p(\alpha, \alpha')X$ reaction at $T_\alpha=4.2$ GeV, $\theta = 0.8^\circ$ [11]. Full points show magnified data.

FIG. 4: Cross-section of the $p(\alpha, \alpha')X$ reaction at $T_\alpha=4.2$ GeV, $\theta = 2^\circ$ [13]. Full points show magnified data.

We observe a fair agreement between the masses obtained using data originally collected in different experiments, studied with different aims, carried out by different physicists in different reactions with different probes and different experimental equipments.

This agreement is illustrated in Fig. 6 where the points are well aligned along straight lines which correspond to the same masses.