

6. DETECTION OF FISSION LIKE PROCESS IN THE $^{63,65}\text{Cu}+^{16}\text{O}$ SYSTEMS

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The analysis of the mass spectra (Figure 1) for the $^{nat}\text{Cu}+^{16}\text{O}$ system (see page 7) shows, in addition to the fusion products, some reaction products with mass around one half of the compound nucleus mass. These fragments that we have designated here as fission fragments have an intensity less than one tenth that of the fusion data. Another point of interest is the enhancement of this process for the $^{63}\text{Cu}+^{16}\text{O}$ system (3-4 times stronger in comparison with the $^{65}\text{Cu}+^{16}\text{O}$ system), a behaviour which is contrary to that observed in the fusion data at lower bombarding energies. In Figure 2 we show an excitation function for this process ($^{63}\text{Cu}+^{16}\text{O}$ system) together with the excitation functions for the fusion data.

This is not the first time that fission like fragments were detected in this regions of mass ($A \approx 80$). In the work of Barrette et al., these fragments were detected for the $^{32}\text{S} + \text{Ti}$ system which leads to the compound nucleus ^{82}Sr , although a broader peak in the fission like fragments was reported by them.

REFERENCES:

1. J. Barrette et al. , Nucl. Phys. A279 (1977) 125.

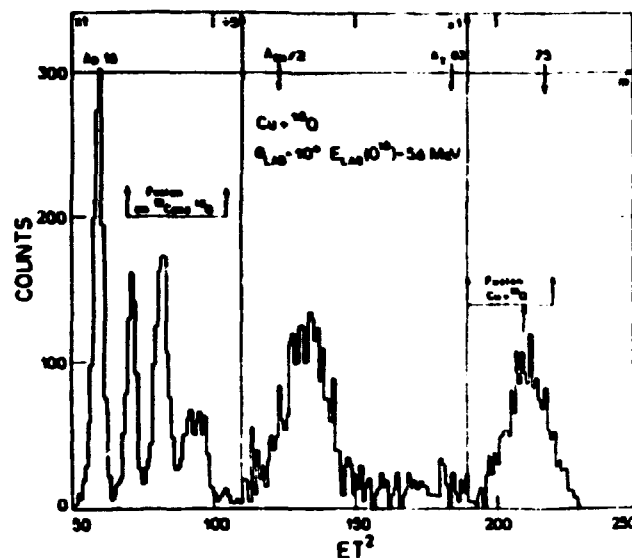


Fig. 1 - Mass spectrum for the $^{nat}\text{Cu}+^{16}\text{O}$ system at $\theta_{LAB}=10^\circ$ and $E_{LAB}=56$ MeV.

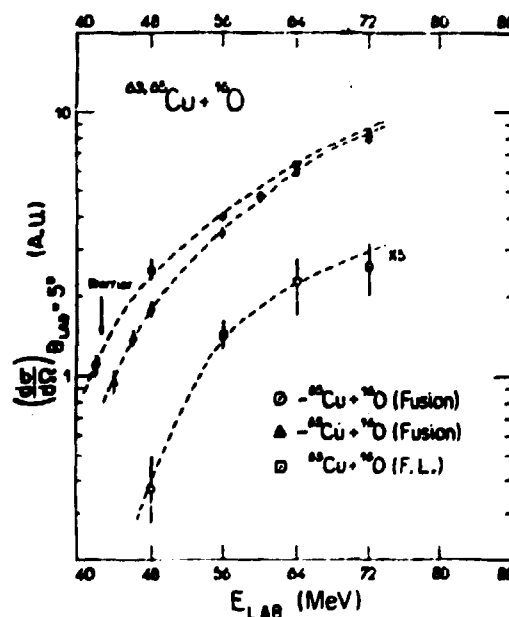


Fig. 2 - Excitation function at $\theta_{LAB}=5^\circ$ for: a) evaporation residues for the $^{65}\text{Cu}+^{16}\text{O}$ systems; b) evaporation residues for the $^{63}\text{Cu}+^{16}\text{O}$ systems; and c) fission like fragments for the $^{63}\text{Cu}+^{16}\text{O}$ system.