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Projectile Fragmentation in Emulsion at (4.1-4.5) A GeV/c

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Abstract: The fragmentation process has been investigated for 4.5A GeV/c ^{28}Si nuclei in emulsion and compared with the results of 4.5A GeV/c ^{24}Mg and 4.1A GeV/c ^{22}Ne in order to test the validity of the different theoretical models. It has been found that a single parameter distribution is insufficient to explain exactly the fragmentation process. Correlation studies have shown to be necessary for distinguishing between the different theoretical models for the fragmentation. The impact parameter, which defines the nature of the collision, has been found to influence considerably the shape of the charge yield distribution. The angular distributions of the projectile fragments can be described by quantum mechanical calculation.

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