

**Analysis of forward-backward multiplicities of particles emitted
in (4.1-4.5)A GeV/c ^{22}Ne and ^{28}Si interactions with emulsion**

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The multiplicities and the correlations of the forward ($\theta < 90$) and backward ($\theta > 90$) secondary particles emitted in the collisions of 4.1A GeV/c ^{22}Ne and 4.5A GeV/c ^{28}Si with have been investigated. Two theoretical models are used to calculate the multiplicity and the correlations of the forward and backward secondary particles. The first model is the modified cascade evaporation model, which implies superposition of nucleon-nucleon interactions. The second model is the modified Fritiof model, which utilizes the Regge theory for the description of the cascading process. The dependence of the average multiplicity of the shower, grey and black particles emitted in the forward and backward hemisphere on the mass number of the projectile nucleus has been studied. The experimental data and the result of calculations in the forward and backward hemispheres have been compared. The multiplicities correlations between the average number of the shower particles and the number of the heavy ionizing particles in the forward hemispheres and backward hemispheres has shown a better agreement with the modified cascade evaporation model calculation relative to that modified Fritiof model.