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Study of Compound Particle Production in ^{28}Si and ^{32}S-Emulsion Collisions at 14.6 and 200 AGeV

Mir Hashim Rasool[1*], Mohammad Ayaz Ahmad[2], Muzamil Ahmad Bhat[1], Shafiq Ahmad[1]

[1]Department of Physics, Aligarh Muslim University, Aligarh, India
[2]Physics Department, Faculty of Science, University of Tabuk, Tabuk, Saudi Arabia
Email: *hrasool23@gmail.com

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Abstract

This work displays a study of the compound multiplicity characteristics of 14.6 and 200 AGeV/c ^{28}Si and ^{32}S-emulsion interactions, where the number of shower and grey particles taken together is termed as compound multiplicity, N_c. It has been found that the average compound multiplicity depends on the mass number of the projectile, A_p, and energy of the projectile. A positive linear dependence of the compound multiplicity on the black, grey, heavy and shower particles has been found. Also the scaling of compound multiplicity distributions produced in these interactions has been studied in order to check the validity of KNO-scaling. A simplified universal function has been used to represent the experimental data. The experimental results have been compared with those obtained by analyzing events generated with the computer code FRITIOF based on Lund Monte Carlo model.

Keywords

Relativistic Heavy Ion Collision, Compound Particle Multiplicity, KNO Scaling, FRITIOF Model

1. Introduction

The study of relativistic heavy-ion collisions has provided new avenues in the field of high energy physics for giving information about the mechanism of particle production. It is important to achieve complete information regarding the mechanism of particle production in nucleus-nucleus collisions. When an energetic projectile collides with targets of nuclear emulsion, a number of charged and uncharged particles are produced. The emer-

*Corresponding author.

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