

Some Correlations of Secondary Charged Pions Produced in Ultra-relativistic Nuclear Collisions

Tuesday 13 October 2020 19:15 (20 minutes)

In the present articles an attempt has been made for the determination of multiplicity distributions of the secondary charged particles produced in the central region of relativistic heavy ion collisions. Due to sophisticated measurement of energy in the nuclear emulsion experiment only some particles having special criteria could be selected to measure their energy with consenting accuracy. A hypothetical model is proposed to correlate the energy of the produced particles to their emission angles so that it becomes easy to estimate the energy distribution in terms of measured emission angle. The proposed model is constructed upon statistical thermodynamic assumptions. Moreover, two additional base functions are originated that play the role of the statistical angular weight factor and the nuclear density of the compressed nuclear matter at the moment of particle emission. The prediction of the model are compared with complete set of measured data of the reactions of proton, helium, carbon and neon nuclei with the composite emulsion nuclei as target at an energy of 14.6A GeV.

Primary author: Dr AHMAD, M. Ayaz (University of Tabuk, Saudi Arabia)

Co-authors: Dr MUSTAFA, Syed Khalid (University of Tabuk, Saudi Arabia); Dr BAKER, Jalal H. (University of Tabuk); Prof. C. VICTORIA, Anghel Drugarin (University of Resita, Resita, Romania); Dr SARIKAVAKLI, Nursabah (Aydın Adnan Menderes University, Aydın, Turkey); Dr V. LYASHENKO, Vyacheslav (Kharkov National University of RadioElectronics, Ukraine)

Presenter: Dr AHMAD, M. Ayaz (University of Tabuk, Saudi Arabia)

Session Classification: Poster session 4 (part 1)

Track Classification: Section 4. Relativistic nuclear physics, elementary particle physics and high-energy physics.