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Elliptic flow in heavy ion collisions at SIS100/300 energies

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In heavy ion collisions the matter highly compressed generated a strong anisotropic flow described by relativistic hydrodynamics. Over the years several methods have been developed to study the flow. In this work we are discussing methods for determining elliptic flow in Au-Au collisions between 2 and 45 A GeV. The correlations between v_2 coefficient and the geometry of the initial state is made. Our analysis is focused on CBM (Compressed Baryonic Matter) experiment at FAIR (Facility for Antiproton and Ion Research) in Darmstadt, Germany. This experiment will use SIS-100/SIS-300 accelerators, under construction at FAIR, producing heavy ion collisions at incident beam energies between 2 and 45 AGeV corresponding to the high net-baryon densities and moderate temperatures of the phase diagram of nuclear matter, area which is incompletely investigated by other experiments[1]. The study is made using YaPT system [2] with specific codes (UrQMD, AMPT, HIJING) and the results are compared with the existing experimental data.

[1] B. Friman, C. Höhne, J. Knoll, S. Leupold, J. Randrup, R. Rapp, P. Senger (editors), The CBM Physics Book, Lecture Notes in Physics, Vol. 814 1st Edition., 2011.

[2]. Al Jipa, S.Cioranu - Rom.Rep.Phys.67 (3)(2015) –in press

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