

NUCLEUS-NUCLEUS INTERACTIONS AT HIGH ENERGIES

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If we bear in mind that the hadron-hadron and hadron - nucleus interactions are already very complex and poorly understood the question which naturally arises is then why to study the even more complex nucleus-nucleus interactions (by which we mean the interactions at the lab. momentum greater than 2 GeV/c per nucleon). The first trivial answer is because they do exist and because today they can be experimentally investigated at the existing accelerators (among which the largest is the one in Dubna for 2 - 10 GeV/c per nucleon). The other possible answer is that we suspect that the study of those interactions can yield some informations about the so called critical phenomena in nuclear matter and about the nuclear surface.

The Laboratory for Elementary Particle Physics at the Phys. Dept. Univ. of Belgrade is for the last two years involved in the study of nucleus-nucleus interactions, or the relativistic nuclear physics, as a member of international collaboration around the 2m propane bubble chamber in Dubna..

One of the main results up to now was the confirmation of the assumptions that the nucleus-nucleus interaction develops dominantly as the incoherent sum of nucleon-nucleon interactions.

However, among the events scanned, there are indications of the more exotic, collective phenomena such as:

- the occurrence of π 's and p's far out the kinematical region for a hadron-hadron interaction (cumulative effect)

- the increase of inelastic cross sections for secondary nuclear fragments (Friedlander effect)

- the correlated emission of secondary pions.