



CERN Joint EP/PP Seminars

SPEAKER: Alexey Zhemchugov (Joint Inst. for Nuclear Research (JINR))

TITLE: **Recent results from HARP-CDP and the "LSND anomaly"**

DATE: Tue 14/09/2010 11:00

PLACE: 222-R-001

ABSTRACT

The HARP-CDP group analyzed hadroproduction data recorded by the HARP detector at the CERN-PS. Objects of study are (i) double-differential inclusive cross-sections of proton and pion production on nuclei ranging from beryllium to lead that permit, inter alia, interesting comparisons between nuclei with different atomic number; and (ii) comparisons of the data with predictions of the FLUKA and the Geant4 programs. A further focus of interest is pion production by a 1.5 GeV/c proton beam, with a view to cross-checking the calculation of the electron-antineutrino background in the LSND experiment. Until now, a 3.8 sigma excess of electron-antineutrinos, claimed by LSND and known as "LSND anomaly", has been interpreted as evidence of muon-antineutrino to electron-antineutrino oscillations which in turn has led to the suggestion of "sterile" neutrinos. We report on an independent calculation of LSND's electron-antineutrino background, using HARP-CDP data, and taking into account pion production by neutrons which had been ignored in LSND's calculations. LSND's claim of a 3.8 sigma excess cannot be upheld.