

CRYSTAL STRUCTURE OF STRONGLY COUPLED  
ONE-COMPONENT PLASMAS CONFINED  
IN QUASI-TWO-DIMENSIONAL GEOMETRY.  
A MONTE CARLO STUDY

*O. V. Bystrenko*

Bogolyubov Institute for Theoretical Physics,  
Nat. Acad. Sci. of Ukraine  
(14b, Metrolohichna Str., Kyiv 03143, Ukraine)

S u m m a r y

Strongly coupled one-component plasmas confined in a quasi-two-dimensional geometry are investigated by means of Monte Carlo (MC) computer simulations. The structure of the layers occurring in these systems is studied in terms of the two-dimensional radial pair intra- and interlayer distributions and bond-orientational order parameters. The most remarkable finding is a series of structural transitions with the alternating square (body-centered cubic) and hexagonal (face-centered cubic or hexagonal closely packed) symmetries, as dependent on the interlayer separation. The results of simulations correlate well with the experimental observations of similar transitions in one-dimensionally confined charged colloids and ions in Penning traps.