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**Effect of the polydispersion in the crystallization and micro-structure of the high charged colloids** EFRAÍN URRUTIA-BAÑUELOS, Universidad de Sonora, HELIM ARANDA-ESPINOSA, Department of Bioengineering University of Maryland, MARTIN CHASVEZ-PAEZ, Instituto de Fisica de la Universidad Autonoma de S.L.P. — In this work we investigate the effect of the polydispersion in the crystallization and micro-structure of the high charged colloids particles with two and three different types and different concentrations of that types. This results were obtained by computer simulation, the particles interaction was modeled by a screened Coulomb potential. We used 4000 particles in our simulation cell to let them evolution from an initial random configuration, periodic boundary conditions was imposed to simulate the bulk. The temporal evolutions of the configuration show long-ranged self-ordering and a crystalline transition, the crystalline nucleation depend of the concentrations of different kinds as well as of types of particle. The common neighbor analysis (CNA) exhibit the competition of two micro-structures, icosahedral and bcc, in the equilibrium bcc crystalline order is dominant with relative abundance over the other micro-structures. 1.- U. Gasser, Eric R. Weeks *et al*, *Science*, **292** (258), 2001. 2.- Stefan Auer, Daan Frenkel, *Letter of Nature*, **409** (1020), 2001. 3.- J.P. Hoogenboom, *et al*, *Phys. Rev. Letters*, **89** (256104), 2002. 4.- M. Chávez-Páez, E. Urrutia-Bañuelos and M. Medina –Noyola, *Phys. Rev. E*, **58** (681),1998 5.- Andrew S. Clarke and Hannes Jónsson, *Phys. Rev. E*, **47** (3975), 1993.

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