Abstract Submitted
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Bose-Einstein condensation in low dimensional layered structures[1] PATRICIA SALAS, Posgrado en Ciencia e Ingeniería de Materiales, UNAM, Mexico, M.A. SOLIS, Instituto de Fisica, UNAM, Apartado Postal 20-364, Mexico, D.F., Mexico — Bose-Einstein condensation critical temperature, among other thermodynamic properties are reported for an ideal boson gas inside layered structures created by trapping potential of the Kronig-Penney type. We start with a big box where we introduce the Kronig-Penney potential in three directions to get a honey comb of cubes of side a size and walls of variable penetrability ($P = mV_0ab/\hbar^2$), with bosons instead of bees. We are able to reduce the dimensions of the cubes to simulate bosons inside quantum dots. The critical temperature, starting from that of an ideal boson gas inside the big box, decreases as the small cube wall impenetrability increases arriving to a tiny but different from zero when the penetrability is zero ($P \longrightarrow \infty$). We also calculate the internal energy and the specific heat, and compare them to the ones obtained for the case of the same Kronig-Penney potential in one direction (simulating layers), and two directions (nanotubes).

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