Bosons among Kronig-Penney layers[1] MIGUEL A. SOLIS, MIRTA RODRIGUEZ, Instituto de Fisica, UNAM, Apdo. Postal 20-364, 01000 Mexico D.F., MEXICO, MARCELA GRETHER, Facultad de Ciencias, UNAM, Apdo. Postal 70-542, 04510 Mexico, D.F., MEXICO — We describe the statistical behavior of an ideal boson gas among periodic plane layers which are simulated by an external Kronig-Penney potential in the z-direction while bosons are allowed to be free in the other two directions. The critical temperature goes from the 3D ideal boson gas critical temperature to that of a quasi-2D boson gas inside a slab of wide a, as $P = mV_0ab/\hbar^2$ goes from zero to infinity. When we turn on a small repulsive (attractive) interaction between bosons, the critical temperature increases (decreases) compared to the ideal case with the same P and a. We also calculate and discuss other thermodynamic properties such as the specific heat.

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