Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Hydrogen adsorption studies in micro-size cobalt dots

— Hydrogen desorption curves were obtained from a sample composed of square arrangement of Co dots with average diameter of 4.4 microns, separated by a distance of 11.6 microns. A macroscopic sample of Co dots grown on a 2.5x2.5 cm Si substrate was made by standard lithographic techniques and used in these experiments. Thermal programmed desorption (TPD) was performed under ultra-high vacuum conditions. Hydrogen TPD curves were obtained from a 1x1 cm sample of Co dots, Co films and Co foils for comparison. The hydrogen TPD curves peaked at 425 K and have decreasing intensity from the Co foils to the Co dots and to the Co films. A desorption energy of 27 Kcal/mol was obtained for the Co dots suggesting that hydrogen is adsorbed on an hcp or fcc hollow site of the Co dot crystalline structure.

1Funds from FONDECYT 1060634
2Present address: K.U. Leuven, Celestijnenlaan 200 D, B-3001 Leuven, Belgium
3Physics Department, Hodges Hall, Box 6315, West Virginia University, Morgantown, WV 26506, U.S.A.

Alejandro Cabrera
Departamento de Fisica, P. Universidad Catolica de Chile

Date submitted: 20 Nov 2006

Electronic form version 1.4