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Electron Transport Properties of Co Nanodot Arrays CHAE-HYUN KIM, SEONGJIN JANG, WENJIE KONG, HAO ZENG, University at Buffalo, the State University of New York — The DC electron transport properties of Co nanodot arrays have been investigated. The device was produced by e-beam evaporation of cobalt through the nanoporous alumina masks. The masks were mounted on substrates with 2 μm -wide gap between electrodes, fabricated using photolithography before evaporating cobalt. The sizes and interdot spacings of the Co nanodots can be adjusted by widening the pores of the mask for different durations. Metal-insulator transition has been observed as the interdot spacing changes, as evidenced by different temperature dependent resistivity behavior. Magnetoresistance has been measured, and its dependence on structural parameters and temperature will be discussed. Work supported by NSF DMR 0547036.

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