## Abstract Submitted for the MAR10 Meeting of The American Physical Society

Nano-Schottky Contacts Realized by Bottom-up Technique HAKAN PETTERSSON, Center for Applied Mathematics and Physics, Halmstad University, Box 823, SE-301 18 Halmstad, Sweden, DMITRY SUYATIN, JO-HANNA TRAGARDH, MARIA MESSING, Solid State Physics/The Nanometer Structure Consortium, Lund University, Box 118, S-221 00, Lund, Sweden, JAKOB WAGNER, Materials Chemistry, Lund University, Box 124, S-221 00 Lund, Sweden, LARS MONTELIUS, LARS SAMUELSON, Solid State Physics/The Nanometer Structure Consortium, Lund University, Box 118, S-221 00, Lund, Sweden — Here we present a comprehensive study of a rectifying nano-Schottky contact formed at the interface between a gold catalytic particle and an epitaxially grown GaInAs/InAs nanowire. Selective electrical connections formed by electron beam lithography to the catalytic particle on one side, and to the InAs segment on the other side allowed electrical and optical characterization of the formed Schottky junction. From IV measurements taken at different temperatures we have deduced the Schottky barrier height and the height of the barrier formed in the graded GaInAs nanowire segment. The IV characteristics measured under laser stimulation showed that the device can be used as a unipolar photodetector with extremely small detection volume and potentially ultra fast response.

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