Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

III-V nanowires grown in a simple, homebuilt system.[1] M. D. SCHROER, J. R. PETTA, Princeton University — Semiconductor nanowires are promising experimental platforms for studying quantum transport due to their built-in one-dimensional confinement of charge carriers. To enable the study of III-V semiconducting nanowires, we built a simple tube furnace based MOCVD reactor. Growth of InP and InAs nanowires using trimethylindium, di-tert-butylphosphine and triethylarsenic has been studied as a function of temperature, pressure, precursor concentration and growth substrate. At optimal growth conditions, wires of 20-100 nm in diameter and up to 10 μm in length are achievable on InAs substrates. Characterization was performed using SEM, EDS and TEM; both wurtzite and zincblende structures have been observed. We will also present transport measurements of nanowires grown using this system.

[1]We thank Hongkun Park, Stephen Weinman, and Chun Liang Yu for helpful discussions. This work was supported by the Army Research Office (W911NF-08-1-0189) and the National Science Foundation MRSEC Program through the Princeton Center for Complex Materials

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Date submitted: 21 Nov 2008 Electronic form version 1.4