

Abstract Submitted
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Physical Properties of Carbon Nanotube Sheets Dry-Drawn from Tall MWCNT Forests JULIA BYKOVA, Nanotech Institute, UTD, Richardson, TX 75083, WILLIAM HOLMES, Solarno Inc., Coppel, TX 75019, ANVAR ZAKHIDOV, Nanotech Institute, UTD, Richardson, TX 75083 — Highly aligned MWCNT forests can be grown by catalytic CVD process in a dry-spinnable highly oriented form which allows to draw CNT sheets and twist spin yarns [1,2]. However the sheet resistance of such transparent CNT sheets with average height of 300 μm is quite high: 500-700 Ω/sq . Motivation of our study is to grow taller forests with optimal interbundle connectivity [3] which may result in lower sheet resistance of CNT sheets and higher optical transparency by optimized control of CCVD conditions. We have succeeded to grow tall CNT forest with $h=1 \mu\text{m}$ and resulting sheet resistance about 200 Ω/sq . To find the correlation between properties of CNT forests and CNT sheets we conducted SEM analysis combined with Raman, AFM and small-angle X-ray scattering. This study shows how the number, geometry, and mechanical strength of interconnects between bundles are related to the physical properties of CNT sheets.

- [1] M.Zhang, S.Fang et al., Science, V.309 (2005) 1215
- [2] M.Zhang, K.Atkinson, R.Baughman, Science, V.306 (2004) 1358
- [3] A.Kuznetsov, A.Fonseca et al., Adv.Mat., (submitted)

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