

Synthesis of Super-aligned CNT Forests and Spinning CNT Yarn

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A method is presented to prepare super-aligned carbon nanotube (CNT) forests and spin CNT yarn. The super-aligned CNT forests were synthesized on Si wafer substrate by water-assisted chemical vapor deposition. The height of the CNT forest reached about 1 mm or so. In order to obtain super-aligned CNT forest, we went through investigating various experimental conditions. The key factors to achieve super-aligned CNT forest growth were determined to be catalyst, reduction time, gas composition, temperature, and total flow rate. We could optimize the experimental conditions successfully. After this work, CNT yarn was fabricated from the super-aligned CNT forests. The diameter of CNT yarn ranged from 5 to 50 μm . The electrical properties of CNT yarn was studied in this work.