



## Supporting Information Systematic investigations of annealing and functionalization of carbon nanotube yarns

## Maik Scholz <sup>1,2</sup>, Yasuhiko Hayashi<sup>3\*</sup>, Victoria Eckert<sup>1,2</sup>, Vyacheslav Khavrus<sup>1§</sup>, Albrecht Leonhardt<sup>1</sup>, Bernd Büchner<sup>1,4</sup>, Michael Mertig<sup>2,5</sup>, Silke Hampel<sup>1\*</sup>

- <sup>1</sup> Leibniz Institute for Solid State and Material Research Dresden, Helmholtzstr. 20, 01069 Dresden, Germany
- <sup>2</sup> Institute for Physical Chemistry, Technical University of Dresden, 01062 Dresden, Germany
- <sup>3</sup> Graduate School of Natural Science and Technology, Okayama University, 3-1-1 Tsushima-naka, Kita, Okayama 700-8530, Japan
- <sup>4</sup> Institute for Solid State Physics, Technical University of Dresden, 01062 Dresden, Germany
- <sup>5</sup> Kurt-Schwabe-Institut für Mess- und Sensortechnik e.V. Meinsberg, 04736 Waldheim, Germany
- <sup>§</sup> Current address: Life Science Inkubator Sachsen GmbH & Co. KG, Tatzberg 47, 01307 Dresden, Germany (Vyacheslav Khavrus)
- \* Correspondence: E-mail: S.Hampel@ifw-dresden.de; Tel: +49 (0) 351-4659-323 (S.H.) and E-mail: hayashi.yasuhiko@okayama-u.ac.jp; Tel: +81 (0) 86-251-8230 (Y.H.)

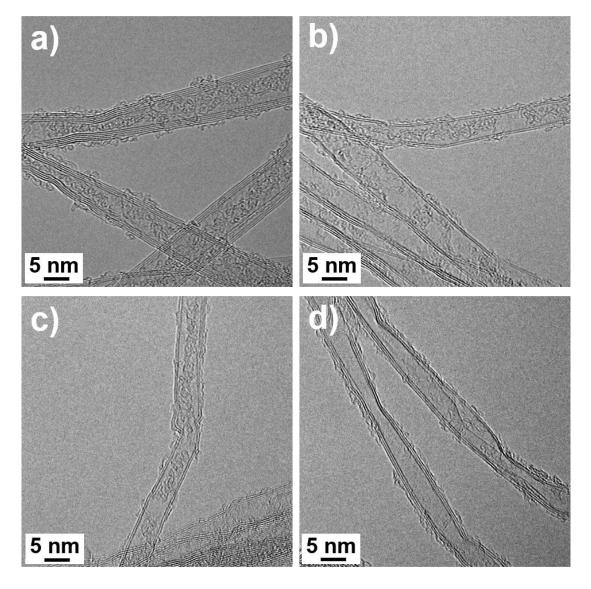


Figure S1: TEM images of pristine CNY.

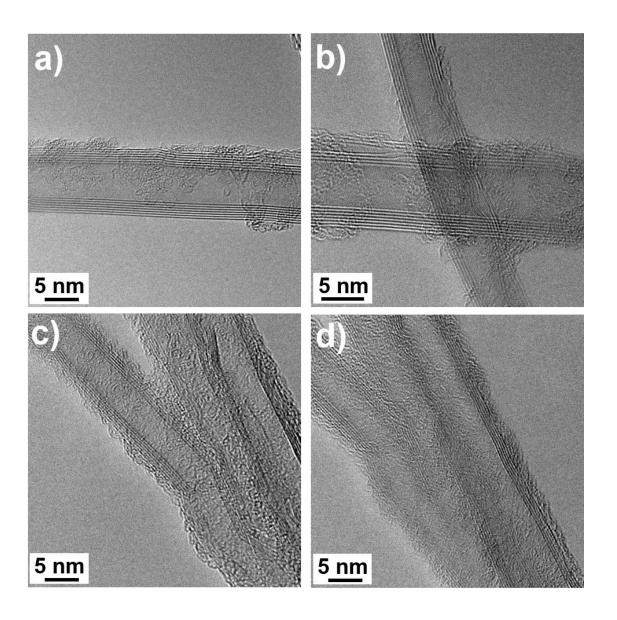


Figure S2: TEM images of annealed CNY for 2h at 2500°C

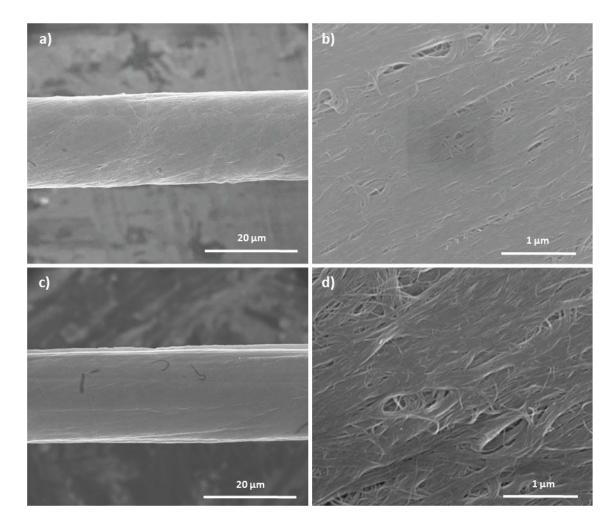


Figure S3: SEM images of CNY after treatment with H<sub>2</sub>O<sub>2</sub>: a) and b) after 3 h and c) and d) after 216 h treatment time.

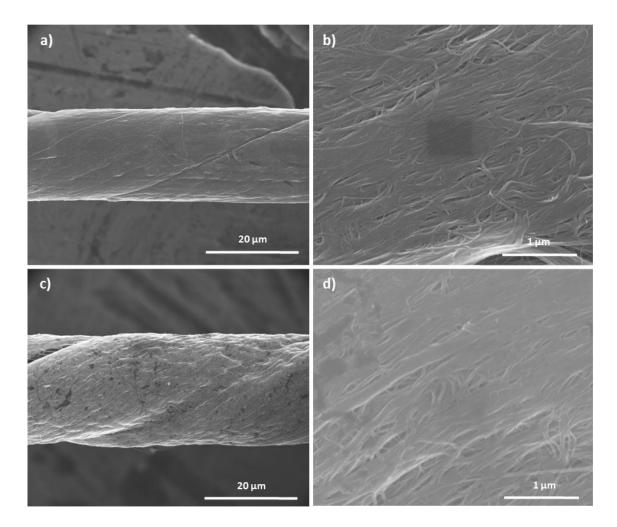


Figure S4: SEM images of CNY after treatment with HCl: a) and b) after 3 h and c) and d) after 216 h treatment time.

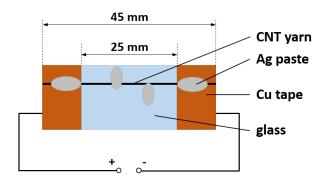


Figure S5: Detailed schematic illustration of the sample holder with fixed CNY for four-point measurements.