

課題番号 : F-14-KT-0119
利用形態 : 技術補助
利用課題名(日本語) : カーボンナノチューブセンサーアレー
Program Title (English) : Carbon nanotube sensors arrays characterization
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1. 概要(Summary)

The aim of this research is the integration of carbon nanotube in CMOS chip to create sensors arrays. This project requires a certain number of characterization tools such as electronic microscope to investigate the structure of the nanosensors and correlate it with further electronic measurement.

2. 実験(Experimental)

•Instrument used

Field-emission ultra-high resolution scanning electron microscope.

•Method

Carbon nanotube sensors characterization; CMOS chip covers with CNT sensors are fabricated in our lab in Riken Kobe. Our characterization tools especially SEM are not powerful enough to see at a sub 10 nm resolution.

3. 結果と考察(Results and Discussion)

Characterization has been done in Nano Hub in Kyoto University by SEM.

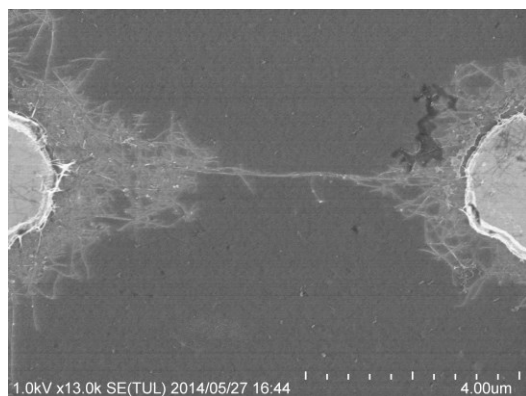


Fig. 1 Carbon Nanotube between two electrodes.

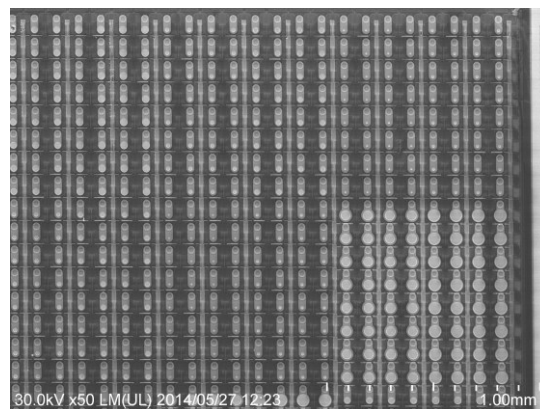


Fig. 2 An array of carbon nanotube sensors.

4. その他・特記事項(Others)

Grant-in-Aid for Young Scientists (B) (Kakenhi, JSPS) “Direct study of neurotransmitter/Action potential correlation with a CMOS integrated carbon nanotube sensors arrays”

References:

Shulaker, et al., Nature, 501(7468), 526–530.
Lee et al. (2010) Lab on a Chip, 10(7), 894–8
Seichepine, F., Dudina, A., Kim, S., Hierlemann, A., & Frey, U. (2013) p. 207, London, UK

5. 論文・学会発表(Publication/Presentation)

Seichepine, F., Rothe, J., Dudina, A., Hierlemann, A., & Frey, U. (2014) Proceedings MicroTAS (pp. 1835–1837), San Antonio, TX.

6. 関連特許(Patent)

No patent.