

Japanese Graphene Research Activities and Roadmap

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Japan has long history of the development of carbon materials, and has produced excellent and advanced materials such as carbon fibers and CVD diamond which have been already practically used. The basic physical and chemical research and theoretical study of carbon materials has been extensively performed. Japan has also contributed to the recent research of nano-carbon materials, such as the discovery of carbon nanotube, which are about to be practically used now, as well as the development of the state of the art measurement technique of high-resolution TEM.

In this talk I introduce recent research activities of graphene in Japan such as low-temperature synthesis of graphene by plasma CVD[1], roll-to-roll synthesis[2], and so on. I also discuss the future research plan of this attractive nano-carbon material.

References

[1] J. Kim, M. Ishihara, Y. Koga, K. Tsugawa, M. Hasegawa, S. Iijima, *Appl. Phys. Lett.*, **98** (2011) 091502.

[2] T. Yamada, M. Ishihara, J. Kim, M. Hasegawa, S. Iijima, *Carbon* **50** (2012) 2615.

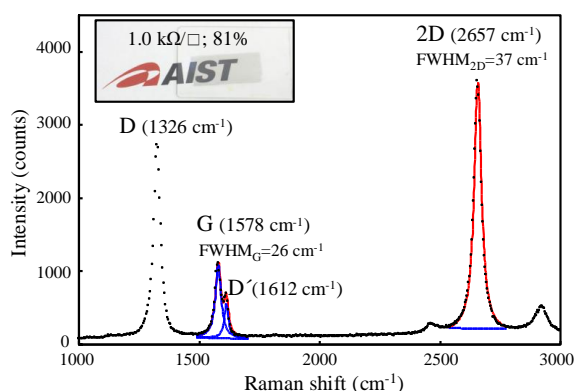


Fig.1 Raman spectrum of graphene synthesized by microwave plasma CVD.

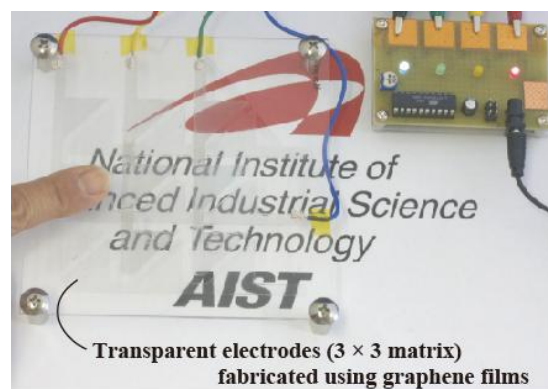


Fig.2 Demonstration of capacitive-type touch sensor using a graphene transparent conductive film.

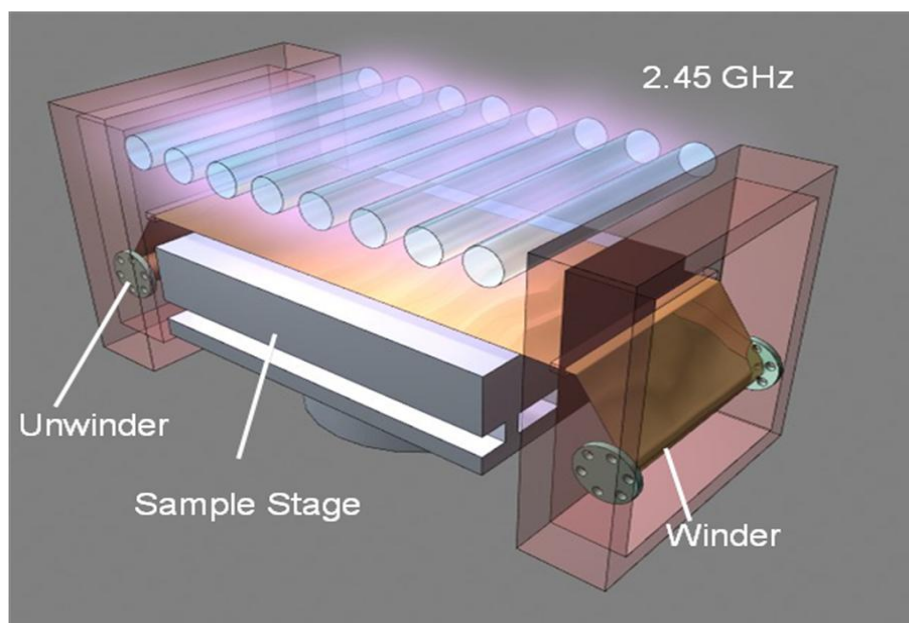


Fig.3 Schematic of Roll-to-roll graphene deposition machine