

# Biomass Derived Graphene Oxide Supercapattery Pool and Method for Directly Wireless Charging by Using a Magnetic Voltaic Effect

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Graphene is the single layer of graphite, it was just been discovered within 6 six years. Graphene has higher electron conductivity and thermal conductivity than graphite. Common processes for manufacturing graphene are chemical deposition, redox reaction from graphite, physical exfoliation, supercritical extraction et al. Expected for used as transparency conducting film and solar cell. Graphene can be used as absorbant, as capacitor mixed with carbon black and 1-Ethyl-3-methylimidazolium tetrafluoroborate. Others also reported that the graphene oxide can form isotropic phase from nematic liquid crystal phase. If graphite mixes with potassium and ammonia, following an extraction of tetra-hydrogen furan, the extracted graphene oxide forms different structures.

At 2008, A. Mukherjee reported that graphene possesses coupling with phonon, anti-ferromagnetic of meta-material properties. Regarding the Monte Carlo calculation results, to apply electro-field or temperature to affect on the melting changes of ordered electron in graphene crystals.

Currently the usage of graphene in the manufacturing of super-capacitor is very similar with traditional method. This invention demonstrated ability for using graphene oxide solution as electrolytes for super-capacitor and maintains the stored electron current by magnetic force. Therefore we can control the discharging rate of this totally novel biomass derived graphene oxide based super-capacitery pool.

In the future we can determine the storage electron-current amount by the used volume of graphene oxide solution rather than the area of electrodes. In our previously publications, we have demonstrate a feasible pathway for preparing graphene sheets carbon materials from biomass derived biochar [1-5]. In this short communication, we would like to report an unpredicted magneto voltaic occurs in biomass derived graphene sheets oxide solution.



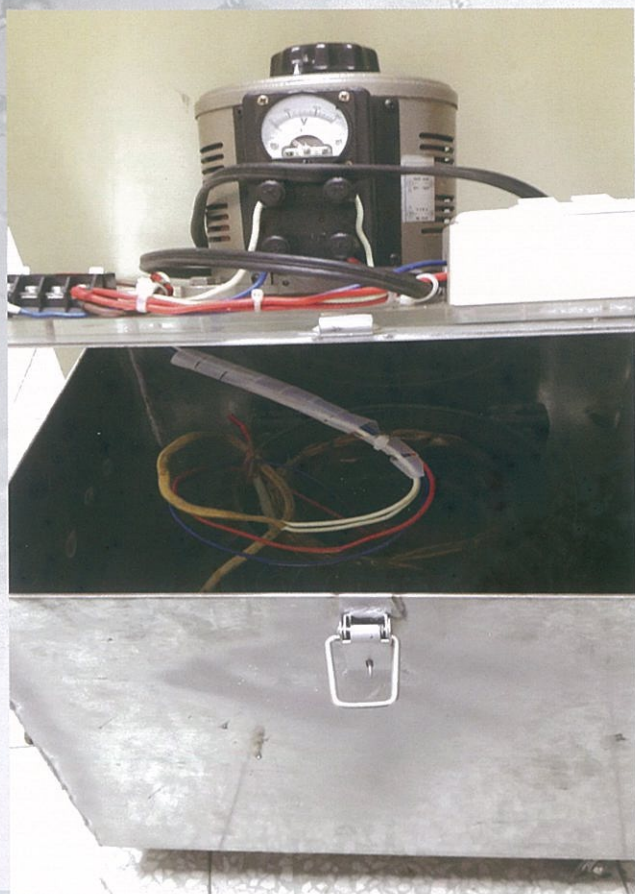


Figure1. Homemade wireless charging box for biomass derived graphene sheets oxide solution with a magnetic field.

Experimental was carried out by homemade biomass derived graphene sheets oxide solution [1], the concentration was 1wt% with a transparency light brown color. A homemade wireless charging box (Figure1 ) was built to provide a homogeneous alternative current magnetic field, from 0 T to 0.05 T. 100mL of the bottled biomass derived graphene sheets oxide solution was placed directly in the center area in the magnetic field for wireless charging for 0 to 30 min, under a magnetic field strength of 0 to 0.02 T. For the first time, the directly magneto-voltaic effect in biomass derived graphene sheets oxide solution was observed. The 1% graphene sheets oxide solution is charged by wireless type under low magnetic field ( $< 0.02$  T). The maximum charged voltage is 3.0 V within 30 min, with a charging rate is 0.1 V/min.

Figure 2 shows the charging curve for 0 to 30 min under 0.0029 T. The maximum voltage of 1.0 V was measured by a commercial Volta-meter, and the charging rate is 0.1 V/min. Figure 3 shows the voltages of charged biomass derived graphene sheets oxide solution under various magnetic field strength. The voltage reaches a maximum was observed and the maximum voltage of 3.0 V would be approached at magnetic field of 0.02 T. The detail mechanism of this process is under progress. This invented product is the first demonstration type in the world developed from the idea of the pattern. We predict that the commercial fine product will be produced within three years.



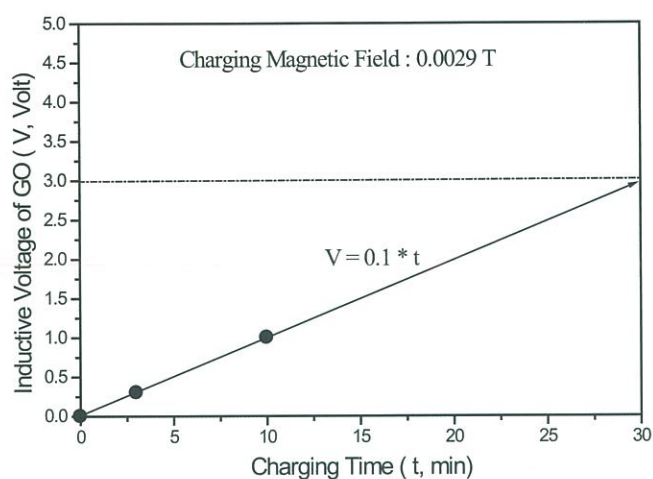


Figure2. Charging curve of biomass derived graphene sheets oxide solution under various charging time.

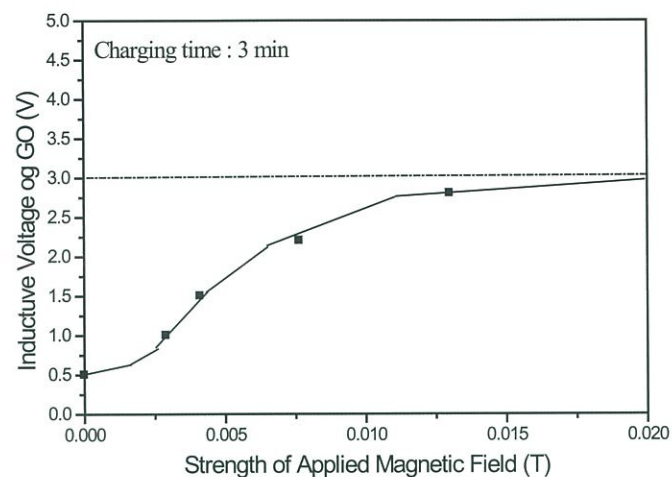


Figure3. Charging curve of biomass derived graphene sheets oxide solution under various magnetic field.

## References

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