

Fabrication and Characterization of LiCoO₂ Battery-Supercapacitor Combination for High-Pulse Power System

Sun Hee Choi¹, Joosun Kim¹ and Young Soo Yoon^{2,*}

¹Nano-Materials Research Center, Korea Institute of

Science and Technology

P. O. Box 131 Cheongryang Seoul 130-650 Korea.

²Department of Advanced Fusion Technology, Konkuk

University

1 Hwayang-dong, Gwangjin-gu, Seoul 143-701, Korea.

The performance of portable electronic equipment can often be improved by including an electrochemical capacitor along side its battery. The capacitor extends battery life by reducing its peak output power. A CR2032 coin-type used for battery cell of LiCoO₂ cathode and Li anode. A mixture of 1 M LiPF₆-ethylene carbonate (EC) / dimethyl carbonate (DMC) (1: 1 by vol., Merck) was used as the electrolyte. Commercial electrochemical capacitors, supplied by Samsung Co., were used.

The electrochemical characteristics of supercapacitor are able to provide a much higher pulse current capability over the battery system. By combination of supercapacitor and battery, the pulse performance of battery can be significantly improved according to various pulse times.

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