

# 25<sup>th</sup> Nano Congress for Future Advancements

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## Jae-Jin Shim

Yeungnam University, South Korea

### Graphene-based nano materials for energy storage and photocatalysis

Nanomaterials have been employed to improve the performance of the energy storage devices (supercapacitor), sensors, and photocatalysts. Especially, oxides and sulfides of transition metals have been getting attention as they have good electrochemical performances. However, their performances are not satisfactory. Various materials such as graphene and carbon nanotubes have studied to enhance the electrochemical properties owing to their large surface area and high electrical conductivity. Synergistic effects from excellent conductivities of graphene and high electrical properties of metal oxides or sulfides have improved the overall electrochemical performances tremendously. Doping of graphene with nitrogen or sulfur, using metal sulfides instead of metal oxides, and using highly porous materials as substrates also contribute towards performance improvement.

### Biography

Jae-Jin Shim received his BS degree from Seoul National University in 1980, MS degree from KAIST in 1982, PhD degree from the University of Texas at Austin in 1990. He has been a Professor in Yeungnam University since 1994 and served as School Chairman and Vice-Dean of Engineering. He was the President of the Korean Society of *Clean Technology* and Vice President of the Korean Society of Engineering Education. He is the Director of Institute of *Clean Technology* and Clean Energy Priority Research Center and served as the Chief Editor of *Clean Technology*. He has published 150 papers in reputed journals.

jjshim@yu.ac.kr

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