

International Conference on

# Smart Materials & Structures

June 15 -17, 2015 Las Vegas, USA

## Plasma treatment on carbon nanowalls grown by microwave PECVD

Won Seok Choi<sup>1</sup>, Yeun-Ho Jung<sup>1</sup>, Feel-Soon Kang<sup>1</sup> and Hyun Suk Hwang<sup>2</sup>

<sup>1</sup>Hanbat National University, Republic of Korea

<sup>2</sup>Seoil University, Republic of Korea

In this study, the effects of post-plasma treatment on synthesized carbon nanowalls (CNWs) grown with a microwave were investigated. CNWs were synthesized by microwave plasma enhanced chemical vapor deposition (PECVD), employing a mixture of CH<sub>4</sub> and H<sub>2</sub> gases. The plasma treatment was done in different plasma environments (O<sub>2</sub> and H<sub>2</sub>) but under the same condition of synthesized CNWs. Raman spectroscopy, field emission scanning electron microscopy (FE-SEM), energy dispersive X-ray spectroscopy (EDS), and fourier transform infrared spectroscopy (FT-IR) were used to analyze the effects of the post-plasma treatment on the synthesized CNWs. After the H<sub>2</sub> post-plasma treatment, no significant changes in the appearance and characteristics of the CNWs were observed. After the O<sub>2</sub> post-plasma treatment, on the other hand, the CNWs were etched at a rate of 18.05 nm/sec. The Raman analysis confirmed, however, that the structural changes in the CNWs caused by the O<sub>2</sub> post-plasma treatment were insignificant.

### Biography

Won Seok Choi received his PhD degree from Sungkyunkwan University, Seoul, Korea, in 2006. After his PhD, he has continued his research at Center for Advanced Plasma Science and Technology as a postdoc fellow. In 2007, he joined the faculty of the Department of Electrical Engineering, Hanbat National University, Daejeon, Korea. His research interests include synthesis and application of nanomaterials.

[wschoi@hanbat.ac.kr](mailto:wschoi@hanbat.ac.kr)

Notes: