

## 나노 Ni Dot를 이용한 ta-C박막의 나노단위 조작

## Nanoscale Manipulation of Tetrahedral Amorphous Carbons by Nano Ni Dot

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The outstanding mechanical, chemical and tribological properties of tetrahedral amorphous carbon (ta-C) film have attracted much attention. For a wider variety of application, a great effort should be focused on the nanoscale structure control. In the present work, we have adopted a novel technique: the nano Ni dot pretreatment. For Ni dot pretreatment, the Ni nano thin film was deposited and annealed prior to the ta-C films deposition. TEM and Raman spectrum analysis shows that the nano-sized Ni dots at the interface between the film and the substrate results in nanoscale graphitic phase embedded in hard ta-C matrix. It was observed that the dimension of Ni dots and carbon ion energy found to be an important factor for the changes in nanoscale film structure. Mechanical and electronic properties were strongly dependent on the changes in nanoscale film structure.