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## Simple purification of single walled carbon nanotubes using homogenizer

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Previous purification methods of single-walled carbon nanotubes (SWCNTs) have required complicate procedure and tedious time consumption using severe acid treatment for removing metal catalysts. Although the methods removed impurities, they induced much surface damage and a lot of weight loss of SWCNTs.

In this work, the homogenizing was conducted for the purification of SWCNTs synthesized by DC arc-discharge which brought short operation time and simple steps of purification.

Consequently we found out the optimal steps for obtaining high purity SWCNTs with low damage. The first step was to burn amorphous carbon materials and carbon particles on the surfaces of SWCNT at 430°C for 1hour in air atmosphere. Then the second step was to remove residual Fe catalysts in 7% hydrochloric acid by 8500 rpm of homogenizer for 10min. The third step was to wash by D.I water. All step took only under 90min. From electron microscopy, purified SWCNTs show high purity. Also, it is observed that the purified SWCNTs have good crystallinity as pristine SWCNTs from Raman spectra.

From these results, our method can be more simple and effective method for the purification of SWCNTs compared with other methods.