

# Preparation of Iron Catalytic Layer onto Functionalized Silicon Substrate for Synthesis of Carbon Nanotubes

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In this study, iron oxide nanoclusters layer (Nc) was prepared onto functionalized silicon substrate by wet method. The amine-terminated SAM fabricated on silicon substrate (APTMS/Si) was carried out by UV-treatment and immersed into the  $\text{FeCl}_3/\text{HCl}$  aqueous solution. Then, Nc were immobilized onto oxidized SAM silicon substrate (SAMs/Si) through electrostatic interaction between cationic Nc and anionic SAMs/Si. This catalytic layer (Nc/SAMs/Si) was used to grow carbon nanotubes (CNTs). The characterization results clearly show that the well-graphitized CNTs were synthesized by using functionalized silicon substrate as a template having appropriate density of catalyst. These consequences show that SAM containing template is important to achieve the effective layer of catalyst to synthesize CNTs.

**Keywords:** Carbon nanotubes, Self assembled monolayer