

Synthesis of carbon nanocoils for composite materials

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Carbon nanocoils (CNCs) are coiled spring-like carbon materials produced using special catalyst possessing specific and superior mechanical properties. For example, CNCs behaves as an ideal spring as the load is applied. Our idea is to ensure a good mechanical bonding of CNCs instead of straight carbon nanotubes (CNTs) and utilize spring properties of CNCs for the application of composite materials. In this study, we have synthesized spring-like carbon nanocoils (CNCs) to apply for various filed of carbon-based materials. CNCs with diameter from 300 to 600 nm have been synthesized by catalytic pyrolysis of acetylene at 700 °C using Fe-Mg-Co-Sn catalyst film supported on an SiO₂ wafer.