

Carbon Nanotubes with Carbon Infiltration as an Antibacterial Surface

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Bacteria is the cause of millions of deaths every year. Antibiotics—a common method to killing or inhibiting bacteria—are becoming less effective as antibiotic resistance grows with time. Tens of thousands of deaths in the US alone can be traced to antibiotic resistance. Current research in this area includes the study of antibacterial materials that assist in preventing spread of bacteria. Many of these materials have been shown to be bactericidal solely through surface topography. In a preliminary study, we have shown that carbon nanotubes (CNT) that have been infiltrated with carbon possess antibacterial properties. Different levels of carbon infiltration are being tested to find the optimum CNT structure that resists bacteria. CNT growing methods include both growth on silicon wafers as well as directly on stainless steel.