Abstract

Thermoplastic resin matrix composite is not only corrosion resistance, non-toxic, but also can be used to process repeatedly, is beneficial to the environment and thus attracted a great deal of attention. Carbon fiber with high temperature, high-intensity, high elastic modulus, creep resistance characteristics such as it is the most commonly used as reinforcing fiber to high-performance resin matrix composite materials. However, without surface treatment, the carbon fiber surface area activity is small and the surface energy is low. Being used for the reinforcement of composite materials, the property of carbon fiber cannot be fully exerted for its poor adhesion with resin, thus the interfacial bonding has become more important.

In this talk, he will mainly focus on the research of surface properties of carbon fiber and the unique physical and chemical characteristics of rare earth, rare earth solution (RES) surface modification method was used for the surface modification of carbon fiber to improve the interfacial bonding of carbon fiber composite, effectively improving the mechanical properties and tribological properties of carbon fiber composite.
About the Speaker

Dr. Xianhua Cheng received his bachelor's degree in materials engineering, master degree in surface technology in 1982 and 1985 respectively at Harbin Institute of Technology, and his Ph.D. degree in 1991 in surface engineering & tribology at Tsinghua University. Prof. Cheng’s research focuses on the application of rare earths in modifying material surfaces and investigation of mechanism of rare earths effects, nano-interface-layer structure and its effect on the properties of composite materials, tribological properties of micro-electromechanical systems (MEMS), failure analysis of machine and innovation of material surface modification. He has carried out more than 40 projects sponsored by National Natural Science Foundation, Science and Technology Department of Shanghai, Machine Industry Department of China, and Shanghai Nano-Science-Technology. He has published more than 200 papers including more than eighty international journal papers with a total citation of over 1000.

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All are welcome!

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