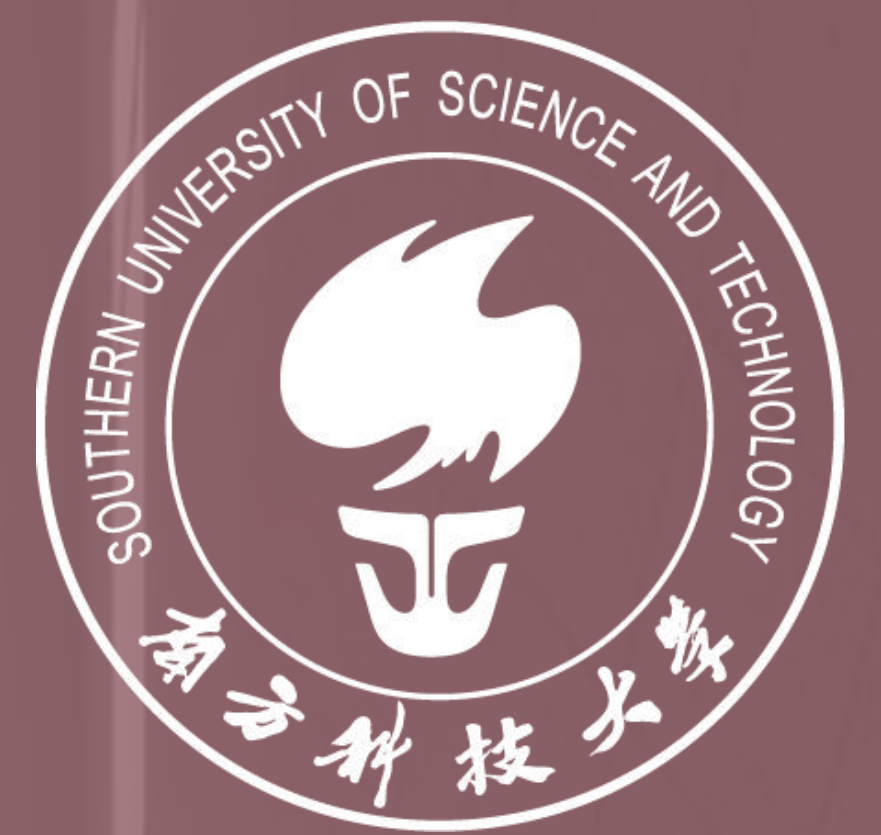


SEMINAR

HYBRID MATERIALS

Historical Perspective and Current Trends



TIME: 9:40-12:00 a.m. , August 19 (Mon.), 2019

VENUE: International Conference Hall 121-1,

Administration Building, SUSTech

HOST: Prof. Jingshen WU, Dean of SDIM, SUSTech

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SPEAKER: Prof. Dr. Volker Altstädt

Prof. Volker Altstädt is a Full Professor and Head of Department of Polymer Engineering, University of Bayreuth, Germany. He is the Member of the National Academy of Science and Engineering (acatech), Germany. Since 1995 he has been a Full Professor for Polymers in Mechanical Engineering and head of the Department of Polymers and Polymer Composites at the Technical University Hamburg-Harburg, Germany. Since 2009 he has been CEO of Neue Materialien Bayreuth GmbH, a Bavarian state R&D-institution in the field of materials and processes for polymers, composites and metals. The research group of Prof. Altstädt is dedicated to scientific and industrial oriented research in the area of polymeric materials, establishing a connection between the natural sciences and engineering technology. Emphasis is placed on the interdisciplinary cooperation among scientists, bringing together the disciplines of chemistry, physics, chemical engineering and mechanical engineering. Research activities of Prof. Altstädt's group focus on polymer foams, polymer composites and nanocomposites, polymer blends and compatibilization, resin systems and flame protection, special injection molding techniques, with the primary goal of determining the structure-properties relationships and tailoring polymeric materials for specific requirements.



CONTENT ABSTRACT

The definition for a hybrid material by the International Union of Pure and Applied Chemistry (IUPAC) is based on a chemistry view that "A hybrid material is composed of an intimate mixture of inorganic components, organic components, or both interpenetrate on scales of less than 1 μm ". For instance, polymer blends of polyphenylene oxide (PPE) / styrene-acrylonitrile copolymer (SAN) compatibilized by the triblock terpolymer (SBM) and Janus particles (JPs) exhibits a sub-micron level contribution of different kinds of organic components. At the same time, engineers look at hybrid materials from a different scale with no uniform definition. According to the engineering view, hybrid materials combine different material classes within one structural material. For example, Glass Laminate Aluminum Reinforced Epoxy (GLARE) is used as a hybrid material in the upper part of the fuselage of the Airbus A380 aircraft. Besides structural applications, food packaging materials are also considered as hybrid materials. As an example, milk packages are composed of polymer (low-density polyethylene), paperboard and aluminium. This lecture was aimed to give an interdisciplinary overview to the world of hybrid materials transferring the view from chemistry to the applied engineering science by focusing on different material aspects and trends.