

Abstract for 29 October 2016, Taichung, Taiwan

## **Innovations in Materials World**

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The scientific research tends to focus on the fundamental properties of the natural world. The materials have been important part of our society. The innovation of smelting and casting metals change the way that cultures developed and interacted with each other. Progressive use of more sophisticated materials showed an innovative divide between people. A chronological evolution and development of materials with time has been discussed in this talk. The materials can be classified as polymers, metals and ceramics as they find wide applications. The twentieth century witnessed a very impressive growth of technologies in producing ultra high purity chemicals, metals, ceramics, composites, semiconductors and dielectric materials.

Materials science is a multidisciplinary field involving the properties of matter and the relationship between the structure of materials at atomic or molecular scales and their macroscopic properties. In recent years, many researchers have turned their attention to nanotechnologies, including the making of nanocomposites and biomaterials, along with electronic polymers. The molecular structure of the materials can be engineered chemically as well as physically at the nano level through several routes and processing. The nanomaterials are very important and they have applications in every sphere of life including physics, chemistry, biology, medicine, engineering and technology.

This talk will focus on the modern tools and techniques available for studying the properties of materials which will enable researchers to develop new materials for different applications like automotive, electronics, biomedical, pharmaceutical, construction, aerospace, defence, textile and sports.