

Joint Event 2<sup>nd</sup> International Conference on

## Nanomaterials and Nanotechnology

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Loughborough University, UK

## Nanocomposite design, manufacture and performance

anocomposite is generally defined as having a microstructure consisting of at least one constituent in a size ranging from a few to tens nanometers along at least one dimension. In the past two decades, significant progress has been made in exploring manufacturing technologies and understanding their physical properties as well as engineering performance. However, new knowledge and novel nanocomposites are still coming up continually with more design strategy adapted to achieve expected performance or adventure unexpected. With the emergence of numerous novel 1D/2D/3D nano-reinforcements or precursors, nanocomposites are getting even more attention and interested than ever. In this talk, the progress of nanocomposite based on ceramics, polymers and metals will be reviewed by aligning them to the then manufacturing technologies and understanding level of their property and performance, followed by some successful nanocomposites with genuine impact generated on real world. Then the talk will focus on nanocomposite design with particular emphasis on the underlined design philosophy and principles, followed

by examples to show the impact of design in achieving expected performance. In the past years, we have witnessed that novel manufacturing technologies have profound impact on the development of nanocomposites. Among these, new sintering technologies and bio-enabled technologies will be discussed with examples presented to show how diversified nanocomposites can be designed and developed to make impact in defense, transportation and energy technologies.

## **Speaker Biography**

Houzheng Wu is a reader in materials science at Loughborough University. He was awarded DPhil in materials at Oxford University. His research interest includes nanocomposites, next generation nuclear graphites and ceramics, ceramic matrix composites, as well as bio-enabled manufacture and high entropy ceramics recently, aiming for application defense, nuclear power and transportation funded by EPSRC, TSB, DSTL and industry. His research has a strong link with application in industry including designing various materials to fit the application needs, and innovation and business exploitation is in progress.

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