**Fabrication of metal carbide reinforced copper matrix composite by in-situ powder metallurgy route for high strength and high electrical conductivity**

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**Abstract:**

Dispersion strengthening of copper is considered as promising method to produce good high temperature strength of copper to help in maintaining good electrical conductivity. Copper could be strengthened by reinforcement of carbides, nitrides, borides and oxides. This talk presents the processing of copper based composite using powder metallurgy route route including mixing, compacting, sintering of powder mixture. Formation of metal carbides in copper matrix based on in-situ approaches involving reaction of metal element and graphite powder mixture is discussed. Properties of bulk copper composite after densification and sintering process based on the influence of carbide formation are the focus of the work. The benefits of novel in-situ fabrication of metal carbide reinforced copper composite in comparison to typical fabrication ex-situ copper composite are highlighted.

**Biography of presenting author**

Prof. Dr. Zuhailawati Hussain is a professor in materials and metallurgy from the School of Materials and Mineral Resources Engineering, Universiti Sains Malaysia. After graduation with PhD (2004), she joined Universiti Sains Malaysia in 2004 and appointed as a professor in 2015. Her research specialization is in development of new alloys and metal composite materials by powder metallurgy for various applications such as welding electrode, cutting tool materials and implant metal. Prof. Zuhailawati has published more than 200 scientific articles in international and local journals, 13 book chapters and 2 books with 3 patents and 1 copyright.

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