INVITED SPEAKER

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Short Biography

Muhammad Hussain Ismail is currently an Associate Professor and Deputy Dean (Research and Industrial Linkage) at the Faculty of Mechanical Engineering, UiTM Shah Alam. He obtained both B. Eng. (Hons) and MSc in Mechanical and Materials Engineering from Universiti Kebangsaan Malaysia (UKM) in 1999 and 2002, respectively. In 2001, he joined UiTM as a lecturer before pursuing his PhD in Sept 2007 at the University of Sheffield. He completed his PhD in 2012 at the Department of Materials Science and Engineering with thesis entitled Processing of Porous NiTi by Metal Injection Moulding (MIM) using Partly Water Soluble Binder System. His research on NiTi alloy by MIM has led to several paper publications, nationally and internationally, 2 patents and Gold awards in international innovation competitions such as ITEX2017 and PECIPTA2017. Currently, he has collaborated with Faculty of Dentistry, UiTM and a start-up company, namely NITIUM Technology Sdn. Bhd. in development and commercialization of the first porous NiTi Dental Implant.

Shape Memory Porous NiTi Alloy for Dental Screws

Among many alloys used in medical applications, NiTi shape memory alloys are widely used either for the production of medical devices or implants owing to their unique properties of shape memory effect (SME) and pseudo-elasticity (PE). Besides, the alloy also exhibits excellent corrosion resistance and biocompatibility. In processing of NiTi alloys, Metal Injection Moulding (MIM) has been successfully exploited for producing two types of NiTi parts; porous and bulk parts. In the present work, porous NiTi dental screw has been fabricated using partly water soluble binder system, which was previously developed in Sheffield University. The porous structure of NiTi alloy exhibits the closest resemblance to human bone in term of Young's modulus that not only provides the sufficient surface roughness for osseointegration but also enables the bone-in growth inside the implant surface.