

DEFORMATION BEHAVIOUR OF FUNCTIONALLY GRADED SHAPE MEMORY ALLOYS

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Functionally graded shape memory alloys have the advantage of joining the properties of shape memory materials and those of functionally graded structures. By proper material and structural design, they can exhibit new and complex thermo mechanical behaviour that are different from uniform shape memory alloys. One of their advantages is their expanded transformation stress and temperature windows which provide improved controllability in actuating application. This study reports on the general concept, fabrication, experimentation and modelling of several designs of functionally graded NiTi alloys, including compositionally graded, micro structurally graded and geometrically graded NiTi structures, and the various techniques that may be used to create them.

Biography

Bashir S. Shariat completed his PhD in 2013 at the University of Western Australia. He started a postdoctoral fellowship at the same university in 2015. He has published more than 20 papers in reputed journals in the field of mechanics and material science. His work on mechanics of functionally graded structures has been recognized internationally. He proposed the concept of functionally graded shape memory alloys, which can be used for different engineering applications including medical devices. He has presented his research outcome in many international conferences.

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