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## An Exploration of Several Structural Measurement Techniques for Usage With Functionally Graded Materials

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By Robert Reuter

Biblioscholar Dez 2012, 2012. Taschenbuch. Book Condition: Neu. 246x189x4 mm. This item is printed on demand - Print on Demand Neuware - Titanium / titanium boride functionally graded 6'x1'x1' beams were subjected to a four-point beam test in order to critique the value of several measurement techniques. Also, finite element analysis results were compared with experimental values and general observations about the experiment were recorded. Uniform 85% TiB / 15% Ti and uniform commercially pure titanium specimens were also subjected to the same loading conditions as a control. Techniques used include digital image correlation, fiber optic strain gauging, strain gauging, and differential infrared thermography techniques. The strain data results were compared with one another and to linear finite element models. It was found that several of the techniques had distinct advantages and disadvantages for usage in a layered functionally graded system. Furthermore, the finite element showed good agreement with results when overlaid with several of the measurement techniques. 74 pp. English.



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