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### **Microstructure and Mechanical Properties of In Situ TiBw/Ti6Al4V Composites with Novel Network Microstructure**

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The present work is a comprehensive treatment of structure-property relation of in situ TiB whisker reinforced Ti6Al4V (TiBw/Ti64) matrix composites with a network microstructure. A range of TiBw/Ti64 composites with varying the network degree were successfully fabricated by reaction hot pressing, where TiB whiskers were in situ synthesized along the “grain boundaries” of as-received spherical titanium particles and subsequently formed into a unique network microstructure. The network degree can be controlled by changing the Ti64 particle size and the overall volume fraction of TiBw reinforcement. The results of mechanical testing indicate that the mechanical properties of TiBw/Ti64 composites with a network microstructure are controllable and foreseeable by controlling the network degree. The strength and stiffness increase but the ductility decreases with increasing the network degree.

#### **Biography:**

Professor Lin Geng received his Ph.D, in Materials Science and Engineering from Harbin Institute of Technology, China, in 1990, and has been the vice dean of the School of Materials Science and Engineering, Harbin Institute of Technology, China, since 2005. He has published more than 300 papers in the field of Metal Matrix Composites, including aluminum matrix composites and titanium matrix composites.