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High strain rate dynamic compressive properties and deformation behavior of Al matrix composite foams reinforced by *in-situ* grown carbon nanotubes

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Abstract

In this paper, high strain rate dynamic compressive properties of the CNT/Al composite foams reinforced by *in-situ* grown carbon nanotubes (CNTs) have been investigated. The results show that the compressive strength and energy absorption capacity of the CNT/Al composite foams not only increase with the increment of CNT content but also increase with the strain rate increasing, revealing a typical strain rate sensitivity. For the 3.0 wt%-CNT/Al composite foams, the peak stress at 2130 s⁻¹ is 52.5 MPa, which is ~86% higher than that at 0.001 s⁻¹ (28.2 MPa). Besides, the deformation behavior of the pure Al foam matrix can be significantly affected by the CNT addition

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