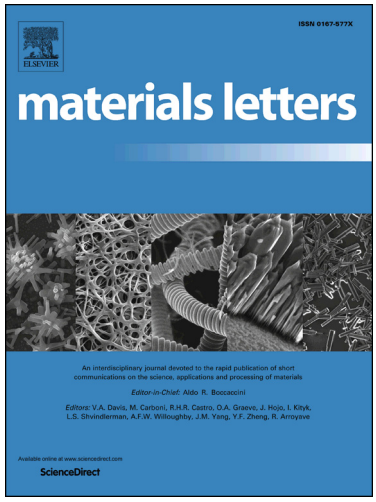

Novel cold spray for fabricating graphene-reinforced metal matrix composites

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Novel cold spray for fabricating graphene-reinforced metal matrix composites

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Abstract: In this paper, cold spray in conjunction with powder ball milling was used to fabricate GNP-reinforced copper MMC coatings without crossing materials' melting points. As a result, non-agglomerated and uniformly-distributed GNPs were included in the cold sprayed MMC powders and coating. No phase change and oxidation occurred during the coating fabrication. The friction coefficient of GNP-reinforced MMC coating reduced by approximately 20% compared to bulk copper. The cold sprayed MMCs also resulted in lower friction coefficient than spark plasma sintered MMCs.

Key words: cold spray, graphene nanoplates (GNPs), metal matrix composites (MMCs), Raman spectrum, friction coefficient

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