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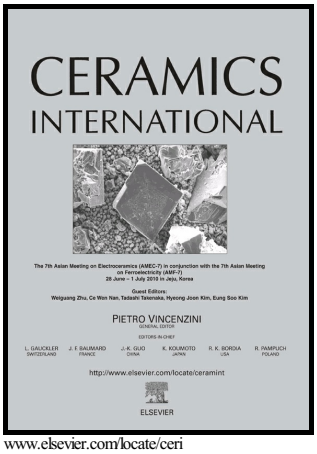

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Structural, hardness and toughness evolution in Si-incorporated TaC films

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Abstract

Ta–Si-C films were deposited by DC magnetron co-sputtering using TaC and Si targets in an Ar-discharge atmosphere. Increasing the current of Si target from 0.0 to 0.5 A led to a continuous increase of Si content from 0.0 to 30.8 at.%. The effects of Si content on microstructure were systematically investigated using X-ray diffraction (XRD), X-ray photoelectron spectroscopy (XPS) and transmission electron microscopy (TEM). At

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