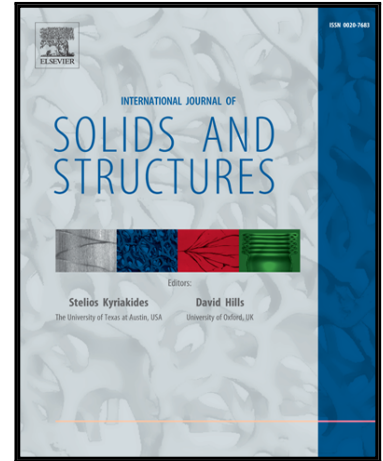


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## Elastic theory of dislocation loops in three-dimensional isotropic bi-materials

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**Abstract** We develop a novel elastic Green's function of point force in three-dimensional isotropic bi-materials that resembles the classical Kelvin solution in the corresponding infinite media. Based upon such a simple bi-material Green's function, we then investigate dislocation loops of arbitrary shape embedded in isotropic bi-materials. The main contribution of this work is an elegant extension of the classical Burgers' formula for displacements, Peach-Koehler's formula for stresses and Blin's formula for the interaction energy from the full-space case to the bi-material case. Most strikingly, our new formulae for bi-materials preserve the same simplicity as the classical expressions in the full space. The correctness of these extended formulae is verified by comparing them with available ones in the literature,

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