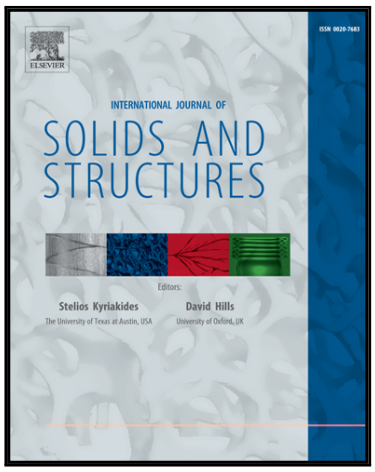

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Screw dislocation in a thin film with surface effects

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Abstract

We use conformal mapping techniques to derive a semi-analytical solution to the problem of a (straight) screw dislocation embedded in a thin solid film. The surfaces of the film are assumed to incorporate surface effects which result in deformation-dependent tractions imposed on the surfaces of the film. A number of examples are used to illustrate the stress distribution in the film and the image force acting on the dislocation. We show that in the absence of surface effects significant errors are induced in the determination of both the

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