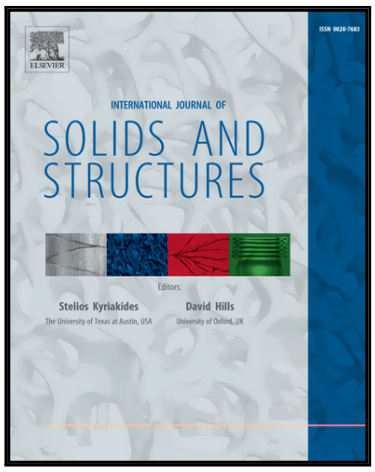

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Application of Green's function method to bending of stress gradient nanobeams

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In this article, the deflection functions of nanobeams are found by employing the well-known Green's function method. Based on the Eringen's nonlocal elasticity theory, stress gradient model is employed to formulate the problem. Different boundary conditions, including, clamped-clamped, clamped-free, simply supported-simply supported and clamped-simply supported are studied. The beams are assumed to be under arbitrary distributed or concentrated loads. By presenting some new Green's integral formulations, three different ways of treating the nonlocal terms are suggested. The specificity of inhomogeneous boundary conditions for the stress gradient nonlocal model is found. A particular property is a possible loss of the symmetry of Green's functions for nonlocal boundary conditions. To validate the proposed results, findings are compared with the available ones in the literature.