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# An original FSDT to study advanced composites on elastic foundation

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## Abstract

This paper presents a bending and free vibration analysis of functionally graded plates (FGPs) resting on elastic foundation by using an original first shear deformation theory (FSDT). This theory contains only four unknowns, which is even less than the classical FSDT. The elastic foundation follows the Pasternak (two-parameter) mathematical model. The governing equations for the bending and free vibration analysis are obtained through the principle of virtual work and Hamilton's principle, respectively. The original displacement field allows obtaining interesting governing equations. These equations are solved via Navier-type, closed form solutions. The accuracy of the current solution is verified by comparing it with 3D and other closed form solutions available in the literature.

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