

**Analytical solution for the transient response of functionally graded rectangular plates
subject to moving loads**

***Ta Duy Hien¹, Hyuk-Chun Noh¹**

¹ Department Civil and Environment, Sejong university, Seoul, South Korea.

*Corresponding author: cpebach@sejong.ac.kr

Dynamic responses of functionally graded (FG) rectangular plates under the moving loads are developed by using the classical plate theory (CPT). It is assumed that material properties of the plate vary continuously in the thickness direction according to the power-law. The equations of motion are derived by using Hamilton's principle. Analytic solution of simply supported FG rectangular plates is presented by using state-space methods. The displacement and stresses in plate are computed with some velocity cases. The effects of various parameters such as power-law exponent index are discussed in detail. In addition, The effects of the moving speed of the load on the dynamic responses of the plates are investigated in detail.

Keywords: Analytical solution, Dynamic response, FG plate, moving loads.