

Numerical approximation of centred fan field region for the indentation of granular material by a smooth rigid wedge

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ABSTRACT

A numerical approximation of the stress equation for the indentation of granular materials by a smooth rigid wedge is presented. Plane strain conditions are assumed and the materials obeys Mohr-Coulomb yield condition. This method determined the formation of centred field region under a smooth rigid wedge punch and construction of the field in the deforming region is presented by using MATLAB programme. The granular material is assume to be in dense, solid like state. The solution only refer to the initial motion after the punch. The stress variables (p, ψ) at each points (x, y) which constructing the deformation field obtained are compared with the exact solution. This method gives simple and reliable algorithms for the solution of the deformation problems involving the stress variables. This will consequently help in the improvement of the existing tools and experimental facilities in the industries and will eventually increase its efficiency.

KEYWORDS

Granular materials; MATLAB; Stress variables

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