

BEM APPROACH OF TIME-HARMONIC PROBLEM FOR POROUSE SOIL-STRUCTURE INTERACTION WITH INTERMEDIATE LAYER

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This study develops the solution for the harmonic response of a porous saturated medium to a harmonic motion of a rigid inclusion when an elastic intermediate layer is located at the soil-structure interface. The problem has been solved by Boundary Elements Method using the Neumann series and the technique, considering any singular integral in a sense of finite part by Hadamard. To accelerate the series convergence the modified Shanks transform has been applied. Using the proposed approach the problem of a linear harmonic motion of the circular inclusion was investigated and the effect of the frequency on the contact stresses and has been studied. It was found that when the frequency increases the maxima of both normal contact stress and porous pressure decrease, while the maximum of a contact shear stress remains almost unchanged.