梁結構應用類神經網路預測彈性支撐剛性值之 研究

A new method based on the technique of artificial neural network for the prediction of the elastic restraint stiffness of beams is presented. The boundary condition of elastic restraints are more practical simulations than the conventional ones, simply-supported or clamped boundary conditions. The conventional structural analysis of beams with elastically restrained boundary is proceeded on the known elastic restraint stiffness. In practice, the elastic restraint stiffness of beams can not be easy evaluated with the conventional analysis. In this paper, a network is trained by backpropagation with the first five natural frequencies of edge elastically restrained beams versus the elastic restraint stiffness. Then a backpropagation network is created to quickly predict the elastic restraint stiffness of beams.