

GEOMETRIC SENSITIVITY ANALYSIS OF BAR STRUCTURES IN LINEAR FORMULATION

Summary: The problem of geometric linear sensitivity analysis of bar structures, which consists in determination of position changes of their points (nodes) induced by dimensional tolerances of structure elements, is discussed in the paper. In particular, the problem of determination of maximal translation of certain point and its direction is analyzed using adjoint method. In order to solve this problem numerical algorithm is proposed and next illustrative examples are solved. On this basis it should be noticed, that the total maximal change in point position may be much greater than the values of particular member tolerances.

Keywords: bar structures, linear sensitivity analysis, adjoint method, tolerances, configuration change