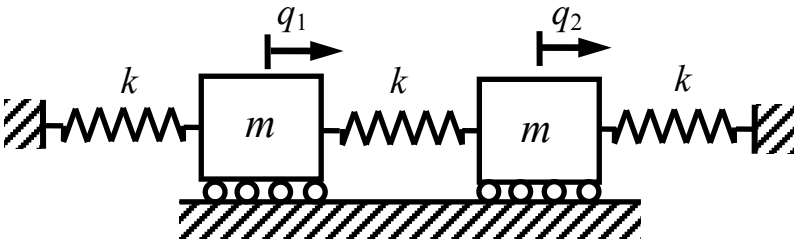
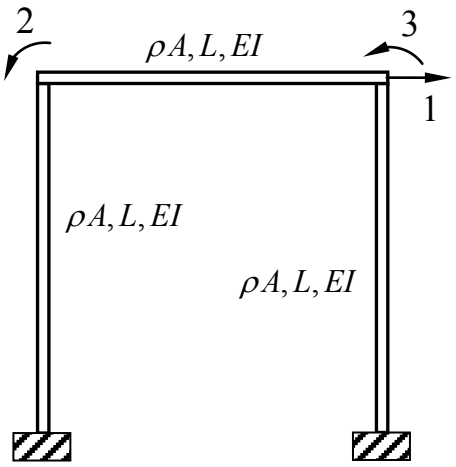


1. Consider above mass spring system. Determinate the equation of motion and calculate the eigenvalues and eigenvectors of the system. Draw the eigenvectors.



2. Determinate the stiffness matrix of the enclosed frame using three DOFs. The axial stiffness can be neglected. Exploit the lumped mass matrix approximation and determinate the non-zero eigenvalue and eigenvector.

   Derive single DOF system by statically condensing the rotational DOFs leaving the lateral DOF.