ELMT05
2d/3d Nonlinear Frame Element by Flexibility Method

For each element property set

MATE, ElmtID	
USER, 5	
Igeom, Istate	
GJ	only relevant in 3d problem
no_IntP, Int_type, Sect_type,	
Sect_ID(1),..., Sect_ID (no_IntP)	
yOption,yOrient(1),…,yOrient(3)	only relevant in 3d problem
dLoad(1),..., dLoad(ndm), LoadID(1),..., LoadID (ndm)	
REZOption,REZone(1), ..., REZone(2*ndm)	
ρ	
α, β	
blank line at end of each element specification	

Definitions:

ElmtID	Element property ID
Igeom	1 : linear geometry 2 : nonlinear geometry
Istate	0 : iterative element state determination 1 : direct element state determination
GJ	Torsional stiffness
no_IntP	Number of integration points (presently limited from 2 to 10)
Int_type	1 : Gauss-Lobatto integration scheme 2 : Gauss-Legendre integration scheme
Sect_type	1 : cross section with fiber discretization 2 : cross section with section force-deformation relation
Sect_ID(i)	Section ID for integration point i (sections are specified in blocks FSEC or HSEC)
yOption	Option for orientation of local reference system relative to global system: 1 : vector specification of local y-axis in global reference system 2 : coordinates of node k such that nodes i, j and k define local x-y plane
yOrient(1:3)	X, Y, Z projection of local y-axis, or, X, Y, Z coordinate of node k
dLoad(1:ndm)	x, y, z component of uniformly distributed element load in local reference system
LoadID(1:ndm)	Proportional Load ID for x, y and z component of uniformly distributed load; proportional load histories are specified with FEAP's PROP macro command
REZOption	Option for rigid end zone offsets 1 : rigid end zone offsets in global reference system 2 : rigid end zone offsets in local reference system
REZone(1:2*ndm)	Rigid end zone offsets at element nodes i and j in global or local reference system REZone(1),.., REZone(ndm): X, Y, (Z) value of offset at node i REZone(ndm+1), …,REZone(2*ndm): X, Y, (Z) value of offset at node j **Note:** for local reference system specification only two x-values are read, i.e. ndm=1
ρ	Mass density per unit volume for fiber and per unit length for hysteretic section
α, β	Rayleigh damping factors; the element damping matrix is $C=\alpha M+\beta K_0$