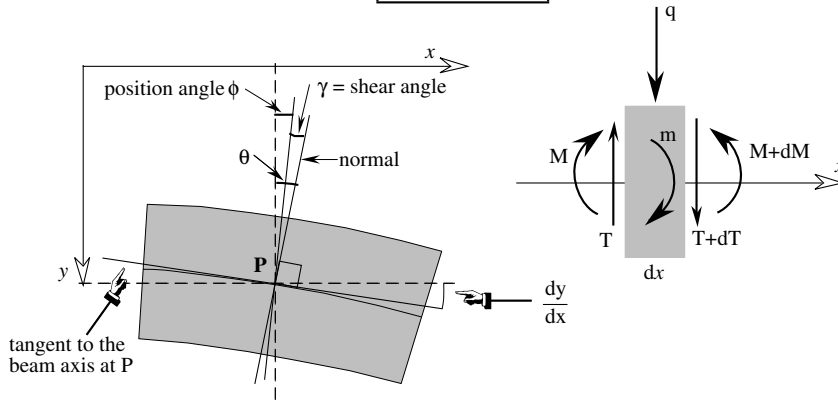
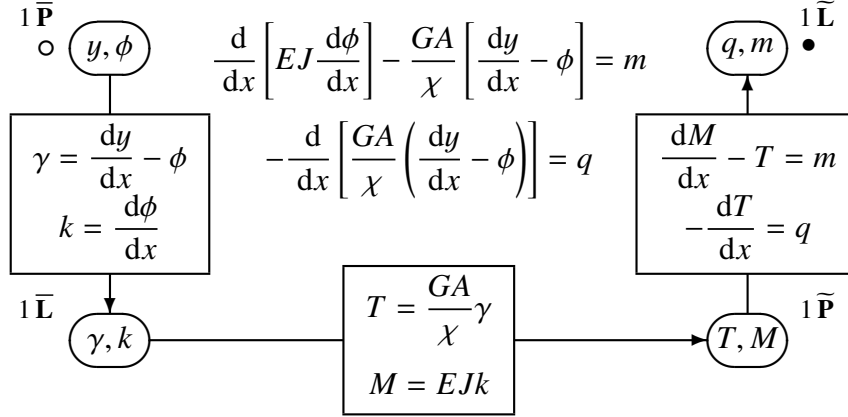


## Cantilever beam: Timoshenko theory

configuration variables  
inner space orientation  
primal cell complex

source variable  
outer space orientation  
dual cell complex



$y$  transversal displacement  
 $\phi$  position angle  
 $\gamma$  shear angle  
 $k$  curvature

$q$  load for unit length  
 $m$  couple for unit length  
 $T$  shear  
 $M$  bending moment

$\chi$  shear factor  
 $G$  shear modulus  
 $A$  area of the cross section

$E$  elastic modulus  
 $J$  second order moment

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M. Roseau. Vibrations in Mechanical Systems. Springer-Verlag, Berlin, West Germany, 1984. ICTP 539.31 GRA  
Ref: Timoshenko...

