**Folded-Flexure Suspension Variants**

* Below: just a subset of the different versions  
* All can be analyzed in a similar fashion

![Diagram of folded-flexure suspension variants](image1)

[From Michael Judy, Ph.D. Thesis, EECS, UC Berkeley, 1994]

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**Folded-Beam Suspensions Permeate MEMS**

* Below: Micro-Oven Controlled Folded-Beam Resonator

![Diagram of stressed folded-flexures](image2)

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**Stressed Folded-Flexures**
Clamped-Guided Beam Under Axial Load

- Important case for MEMS suspensions, since the thin films comprising them are often under residual stress
- Consider small deflection case: \( y(x) \ll L \)

**Governing differential equation:** (Euler Beam Equation)

\[
EI \frac{d^4 y}{dx^4} - S \frac{d^2 y}{dx^2} = F \delta(x-L)
\]

- Axial Load
- Unit impulse @ \( x=L \)