

Boulder Condensed Matter Summer School

- Consider three T beams each made out of a linear elastic material, with Young's modulus Y and bending modulus B . One has a spine given by a straight line $\gamma(x) = (x, 0)$ (left) and the other two have slightly perturbed spines $\gamma(x) = (x, ax^2)$. All three have spines of the same length, l . One of the perturbed "T" beams (top right) has the base of the T in the xy -plane and the top of the T in the z -direction. The other perturbed "T" beam (bottom right) has the base of the "T" in the z -direction and the top of the "T" in the xy -plane. Each T beam has one end clamped and a torque applied to the far end. Calculate the torsional rigidity of each of the 3 beams.

