



**Fig. 7 Free-body diagrams showing orientation of normal stresses and shear stresses in a shaft and the single-overload fracture behavior of ductile and brittle materials. (a) Under simple tension. (b) Under torsion. (c) Under compression loading**

Peter's comment: Bending stress not shown. Typically results in a break perpendicular to shaft axis similar to what is shown for tension / brittle. Fracture surface has clues

The associated stresses are alternating compressive/tensile. The failure is not strictly ductile nor brittle (fatigue)