



Figure 2.14: Single crystal strength in comparison to the measured and calculated strength in polycrystals in Al.

Conclusions:

in a tensile stress-strain-curve ($\sigma - \epsilon$) we get:

- strength difference according to different Schmid factors
- if we want to compare the intrinsic properties we have to calculate the $\tau - \gamma$ curves, hence, excluding the effect of crystallography.
- polycrystals behave similar to $\langle 111 \rangle$ -oriented single crystals (due to the fact that $\langle 111 \rangle$ has six equivalent slip systems)
- taking $M_T = 3.06$ yields a good description of a polycrystalline aggregate set together from a random arrangement of single crystals which are constrained to uniform (macroscopic) deformation.