

# Data Analysis Flow Chart

full strain tensor

$$\boldsymbol{\varepsilon} = \begin{pmatrix} \varepsilon_{xx}-\Delta/3 & \varepsilon_{xy} & \varepsilon_{xz} \\ \varepsilon_{xy} & \varepsilon_{yy}-\Delta/3 & \varepsilon_{yz} \\ \varepsilon_{xz} & \varepsilon_{yz} & \varepsilon_{zz}-\Delta/3 \end{pmatrix} + \begin{pmatrix} \Delta/3 & 0 & 0 \\ 0 & \Delta/3 & 0 \\ 0 & 0 & \Delta/3 \end{pmatrix}$$

deviatoric strain (distortion)      hydrostatic strain (dilatation)

$$\Delta = \varepsilon_{xx} + \varepsilon_{yy} + \varepsilon_{zz}$$

Ref.:  
 J. -S. Chung and G. E. Ice,  
 "Automated indexing for texture and strain  
 measurement with broad-bandpass x-ray microbeams",  
 J. Appl. Phys. 86, 5249-5255 (1999).

