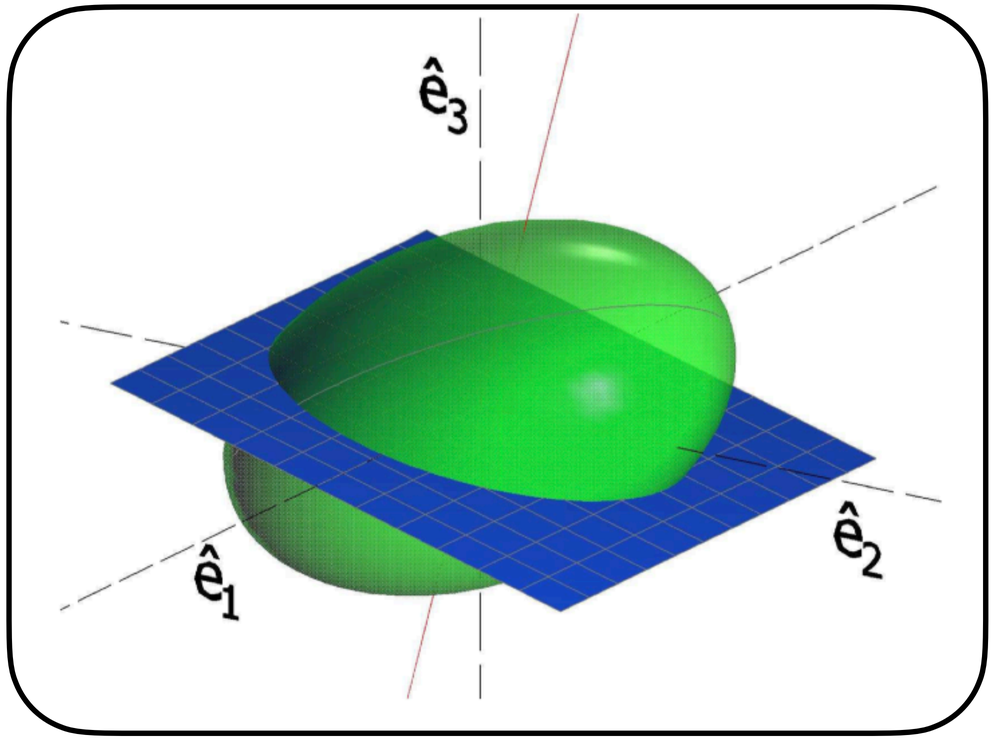
Mechanical modes (Photo-elastic effect)

Index ellipsoid



$$\beta_{ij}\epsilon_{jk} = \delta_{ik}$$

$$\beta_{ij}x_i x_j = 1$$

Mechanical modes (Photo-elastic effect)

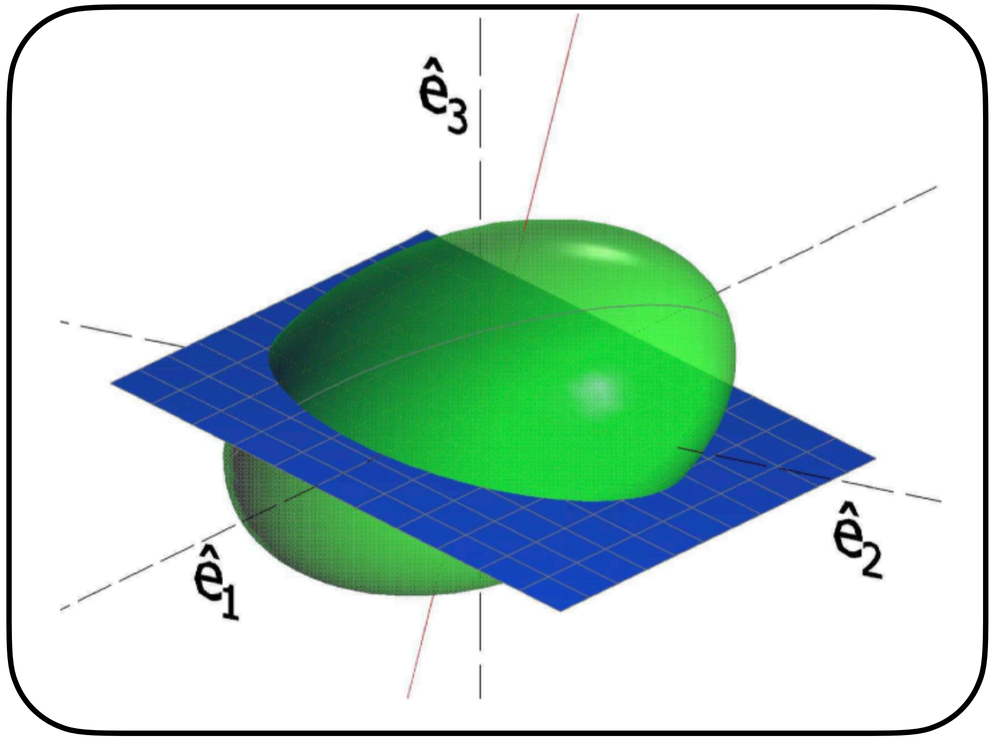
$$[\Delta\beta(\boldsymbol{r};\overleftrightarrow{S})]_{ij} = p_{ijkl}(\boldsymbol{r})S_{kl}(\boldsymbol{r})$$

Photo-elastic effect is described in terms of the "impermeability tensor" β_{ij}

$$S_I = \begin{bmatrix} S_1 \\ S_2 \\ S_3 \\ S_4 \\ S_5 \\ S_6 \end{bmatrix} = \begin{bmatrix} S_{xx} \\ S_{yy} \\ S_{zz} \\ 2S_{yz} \\ 2S_{xz} \\ 2S_{xy} \end{bmatrix}$$

Voigt notation: Strain is a symmetric tensor

Index ellipsoid



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