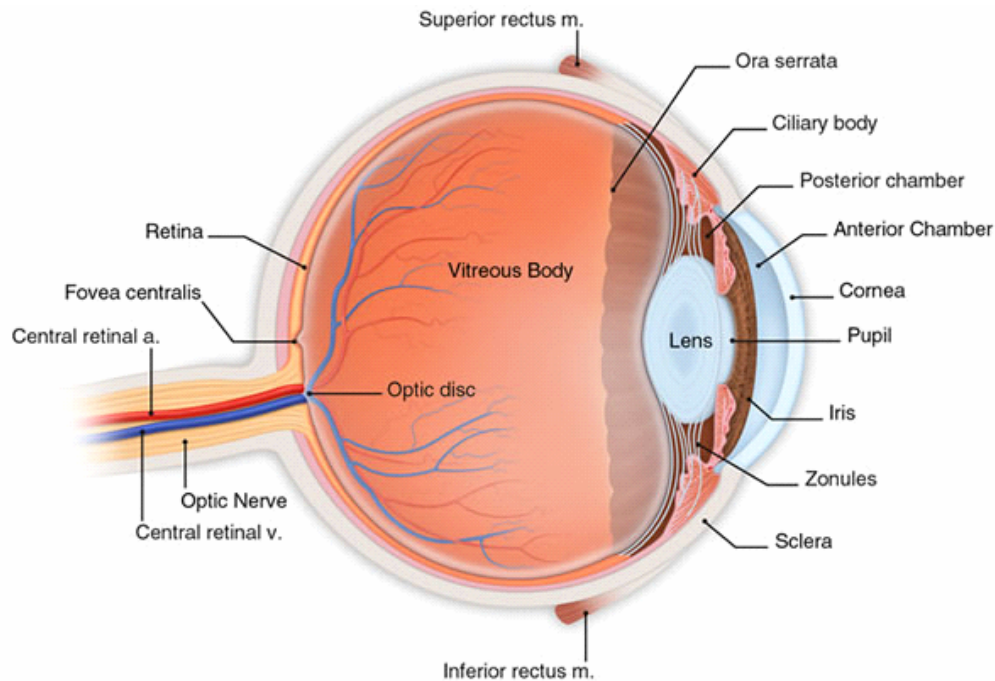
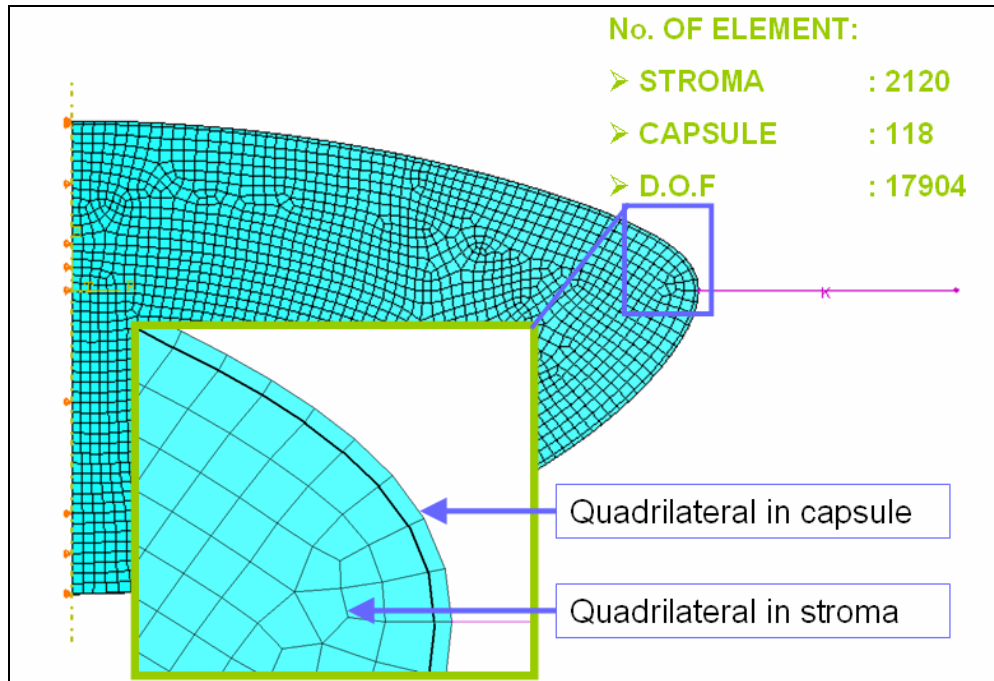


## Nonlinear Finite Element Analysis of Human Accommodation Events

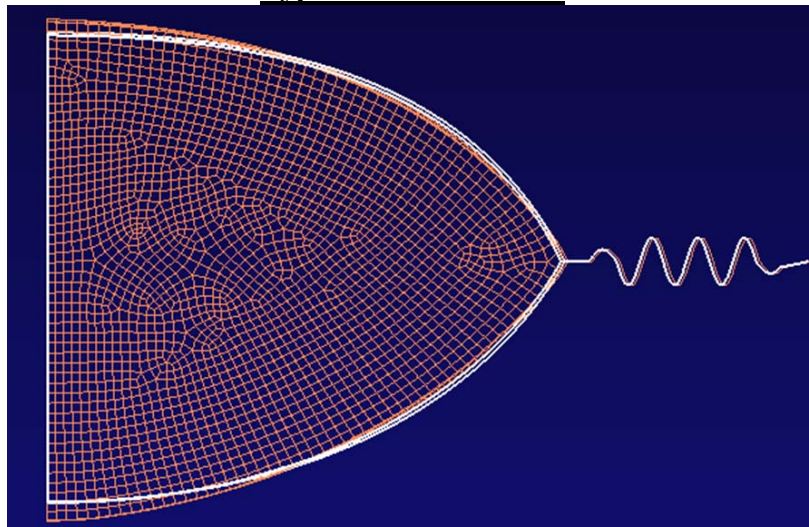
The crystalline human lens is modeled by using the finite element software, ABAQUS/CAE Version 6.5-1 as an axisymmetric shell to study the optical power and displacement of anterior and posterior poles induced due to zonule traction. Several different element types were tested to obtain the optimum mesh. These elements were three and six-noded triangular hybrid and four-noded quadrilateral hybrid for modeling of the cortex and nucleus. Constant strain triangular and regular quadrilateral elements were examined for modeling the capsule. One dimensional two degree of freedom spring elements were used to model the anterior, posterior, and equatorial zonules. Six different lens profiles were selected to mathematically model the lens geometry, which included Lizak; Krueger A; Krueger B; Strenk A; Strenk B; and Trial lens.. The complete analysis of the parametric study including the comparison between this study and those reported in the literature is presented. The findings are also compared with physiology of the lens.



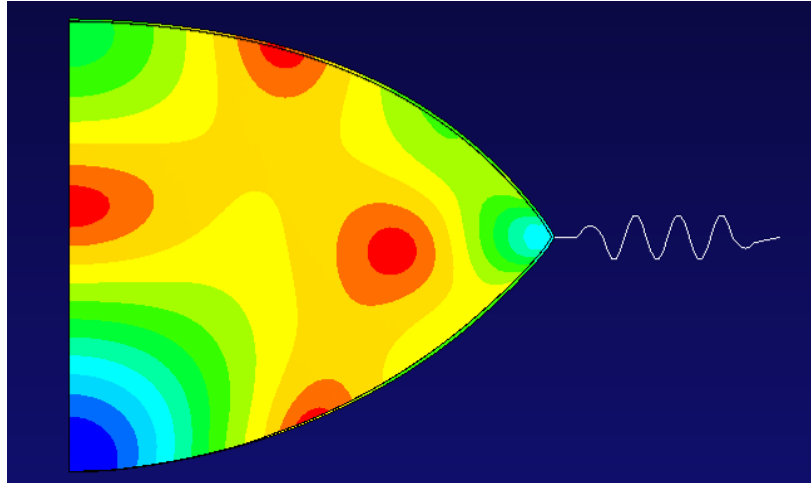
### Eye Anatomy



**Typical Model of Lens**



**Deformation of Lens**



Deformation of Lens - Contour Plot