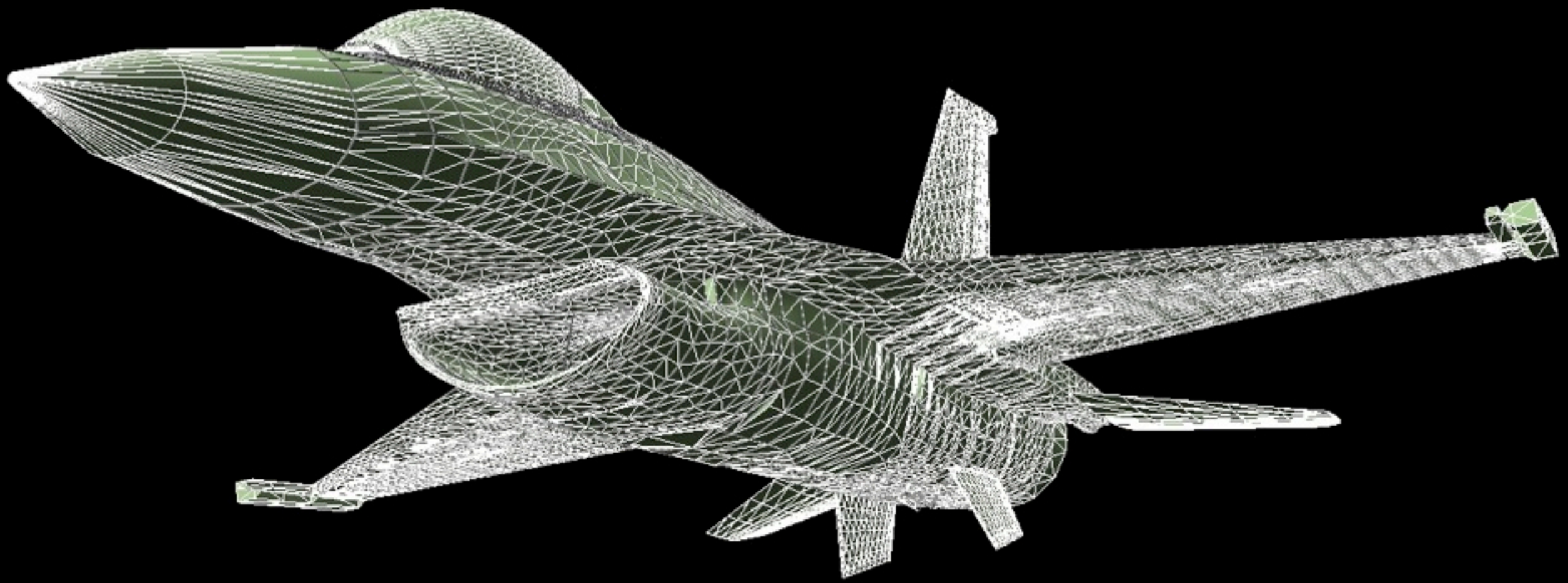
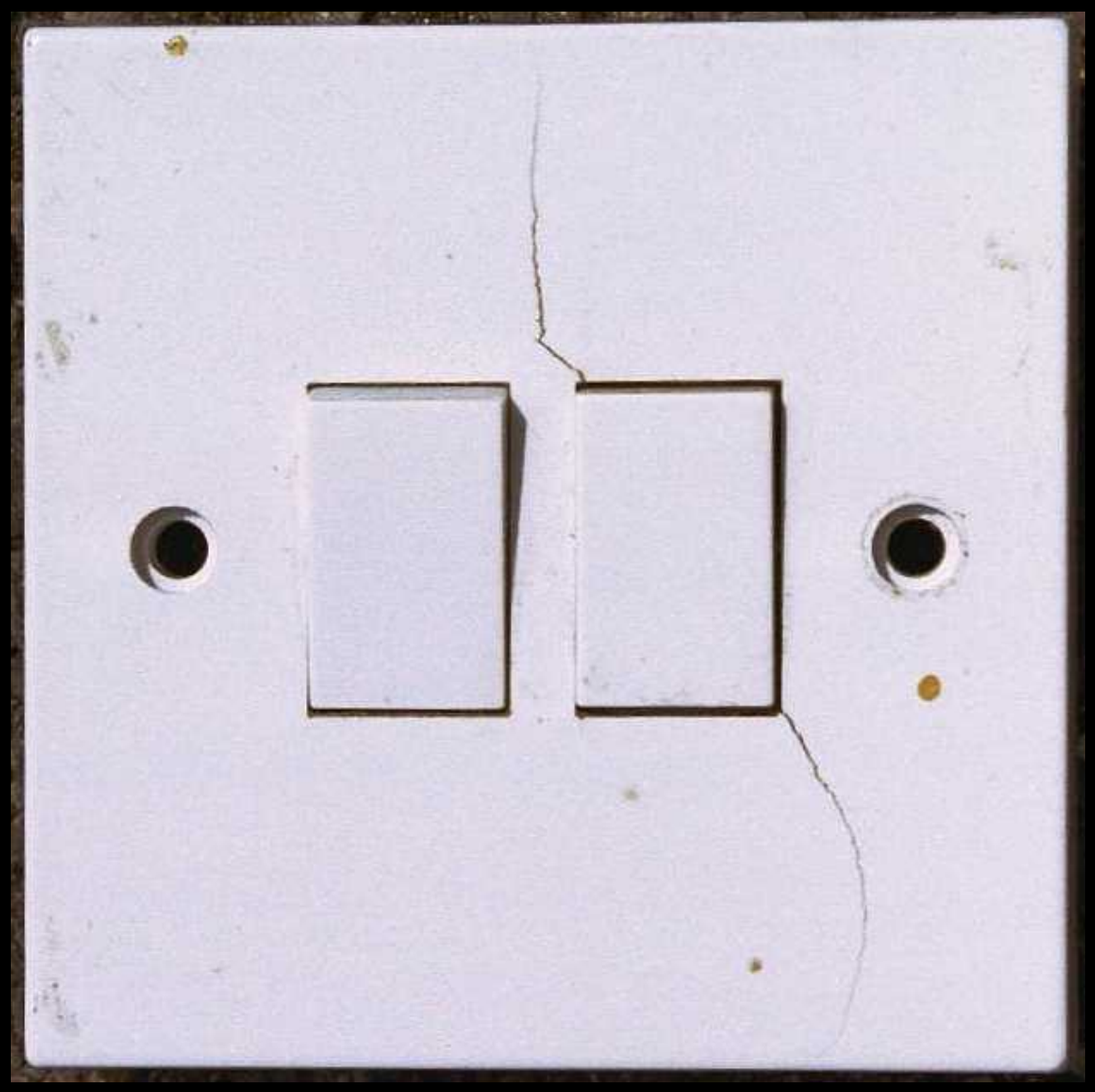
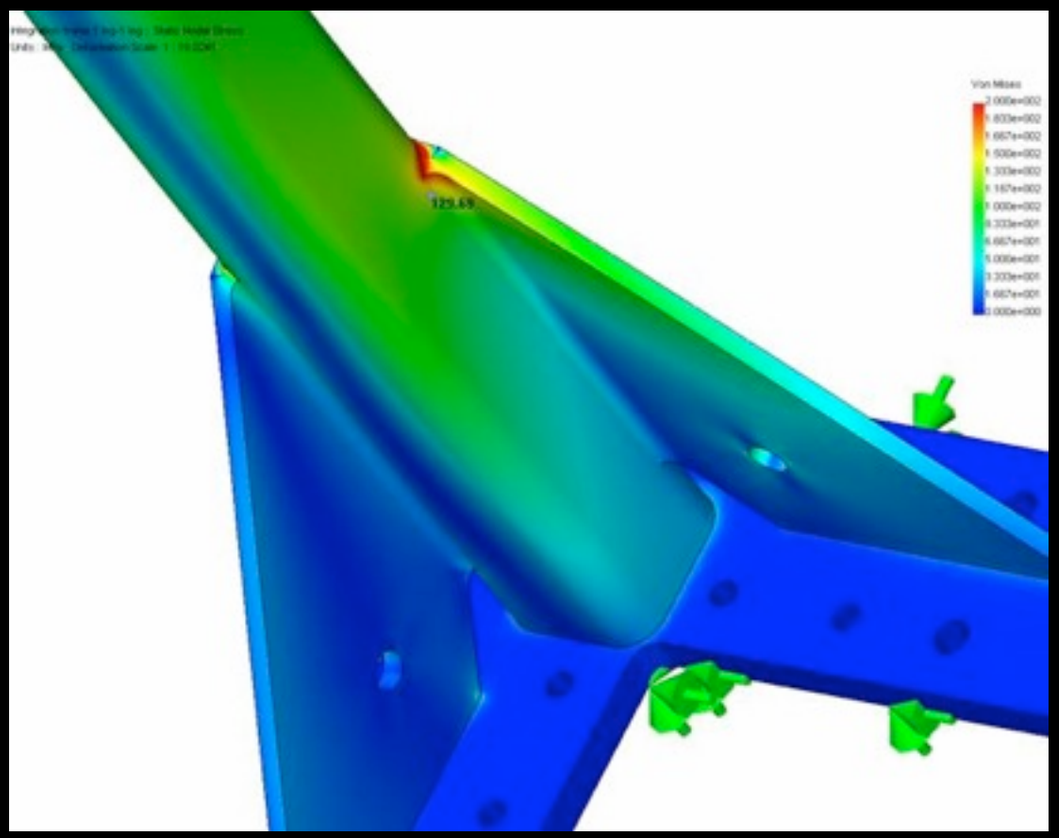


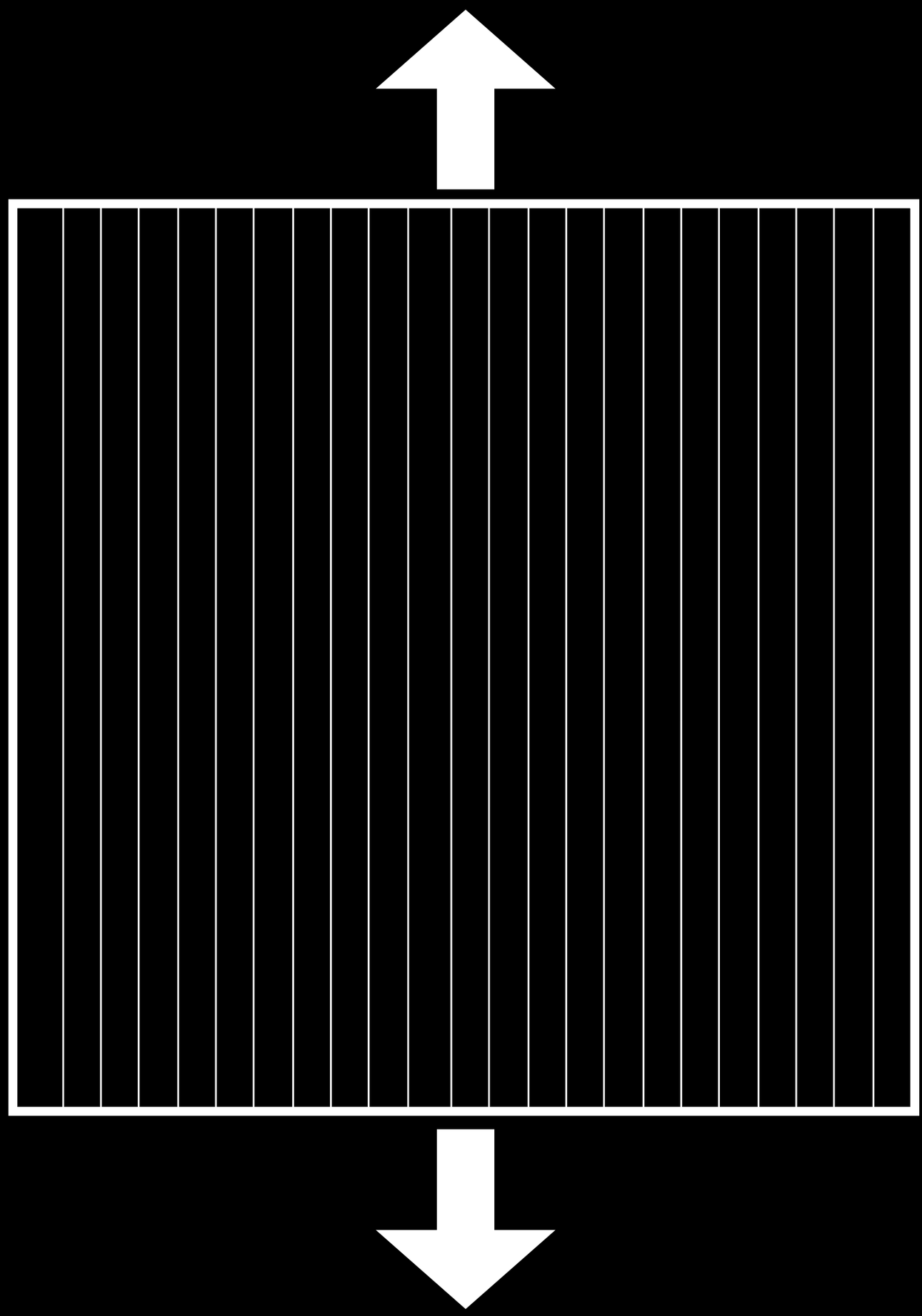
Plane Stress
Stress Concentrations
FEA & Photoelasticity

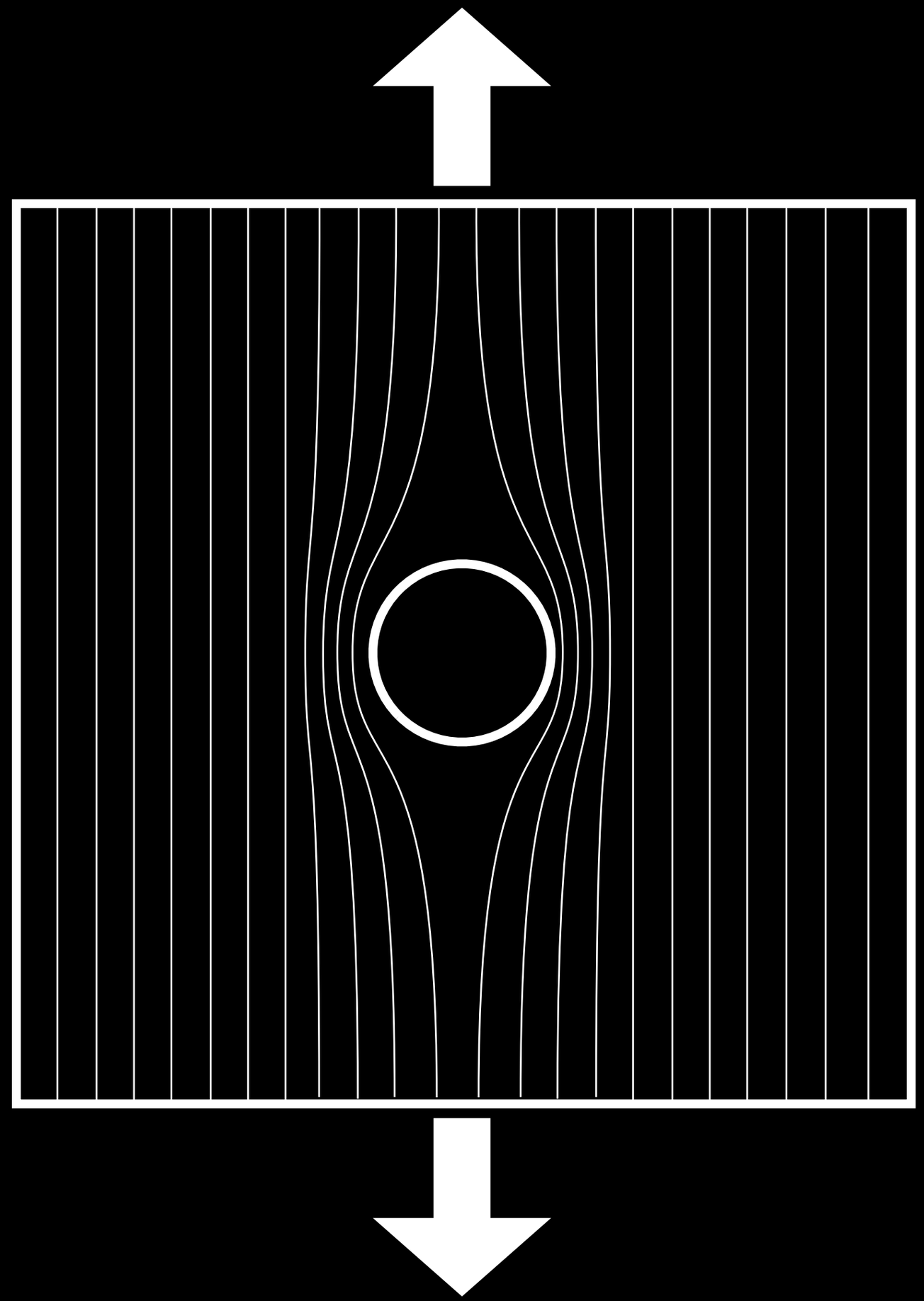
PLANE STRESS

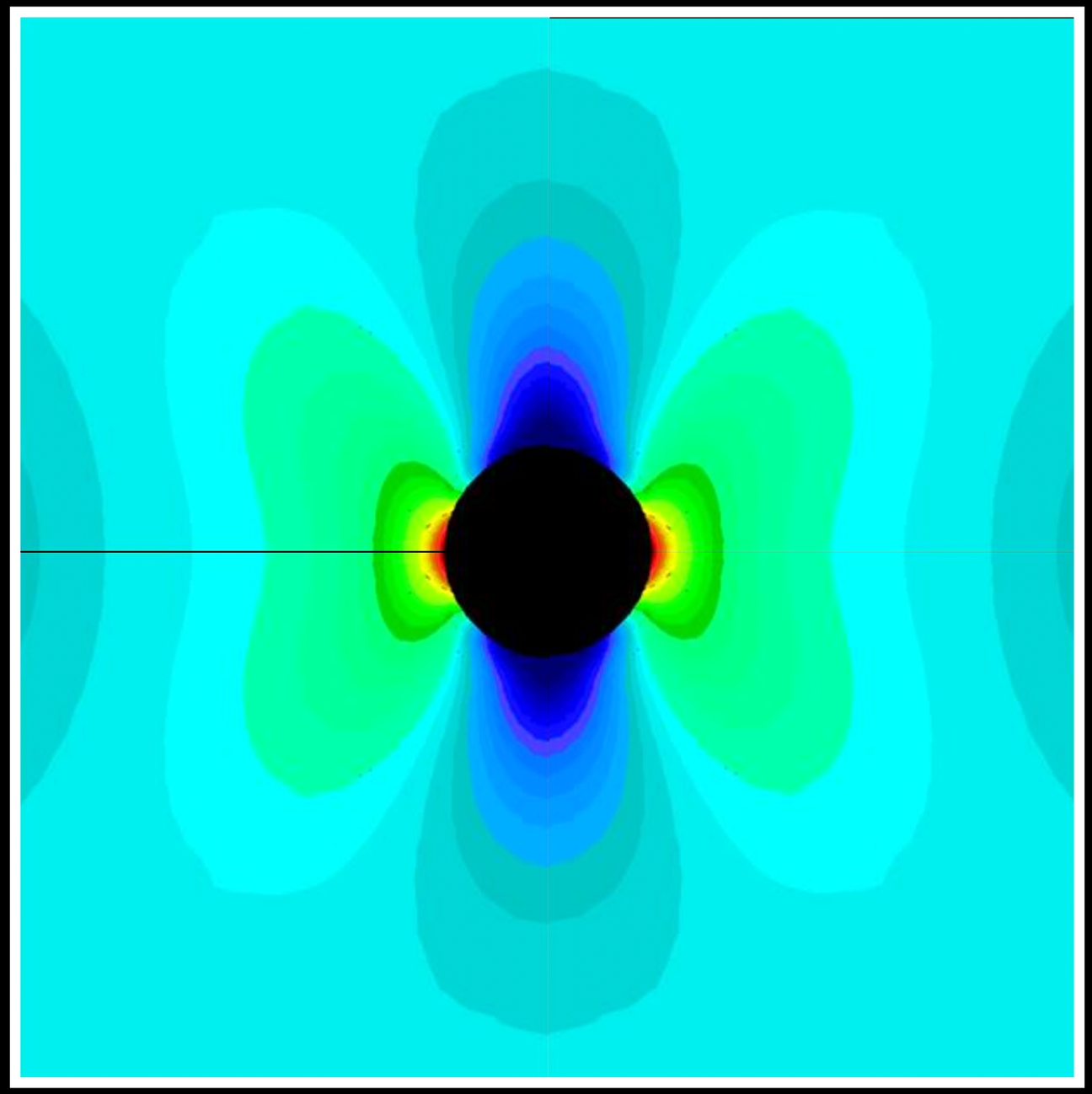
STRESS CONCENTRATIONS



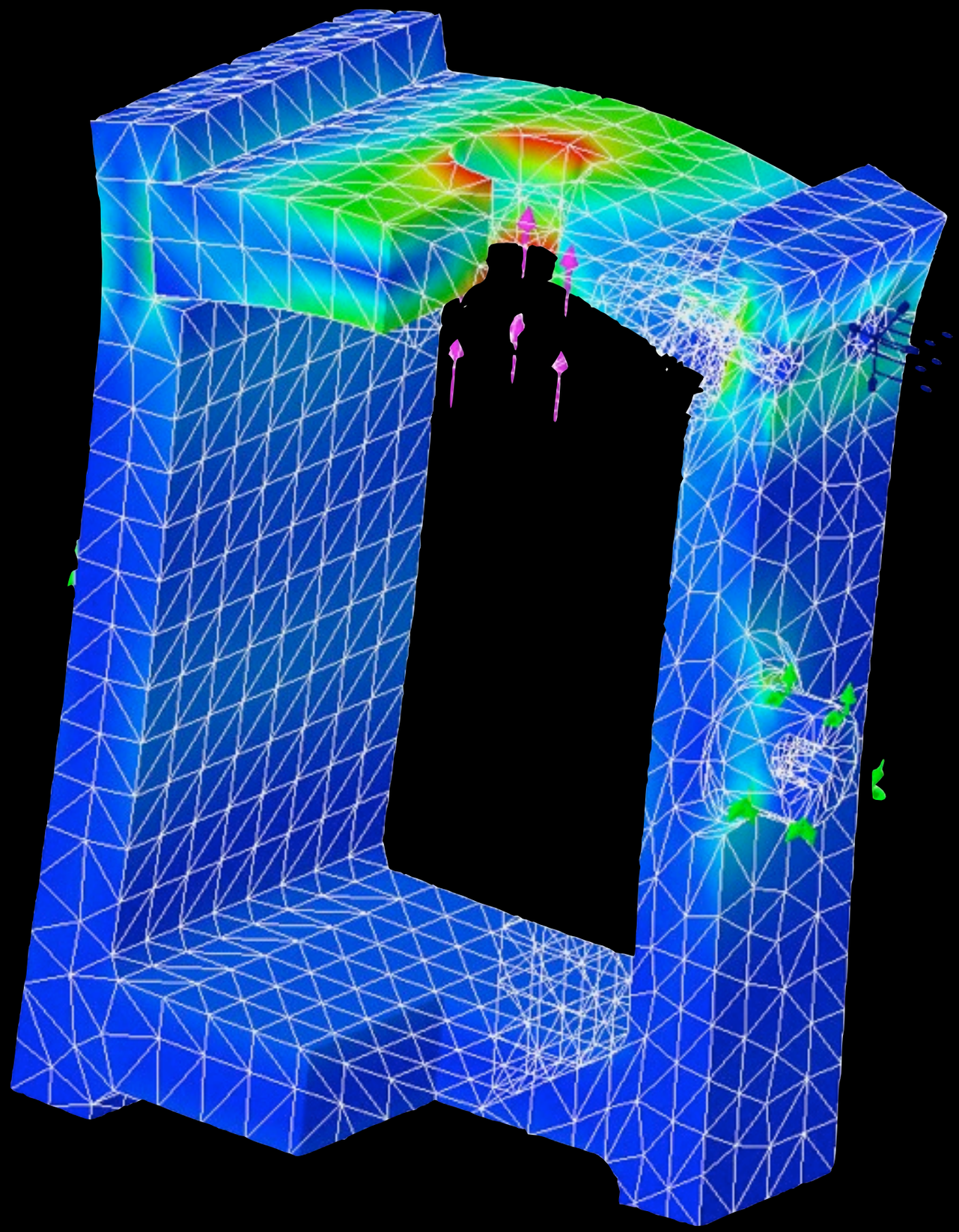

Von Mises
325.69



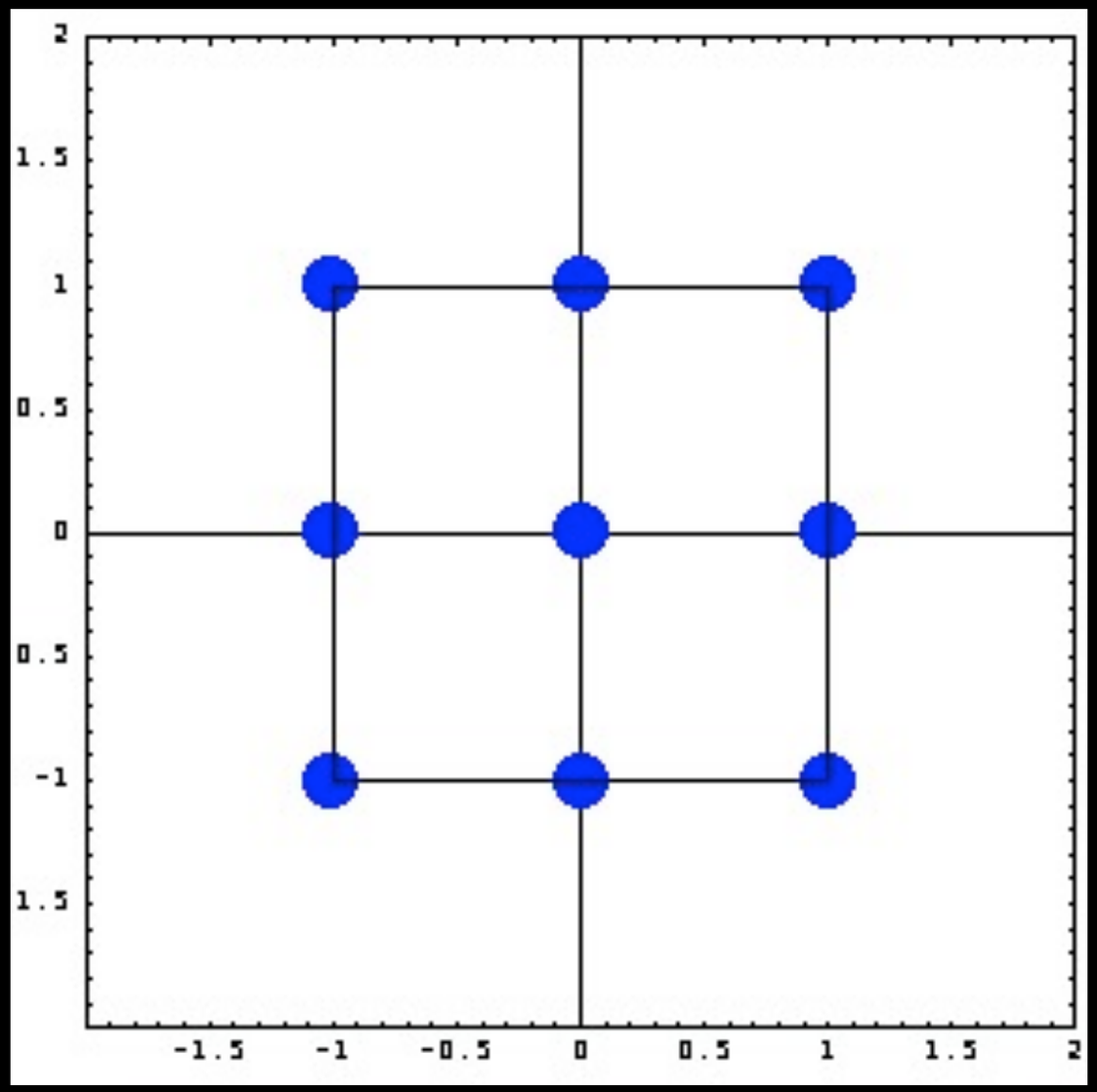




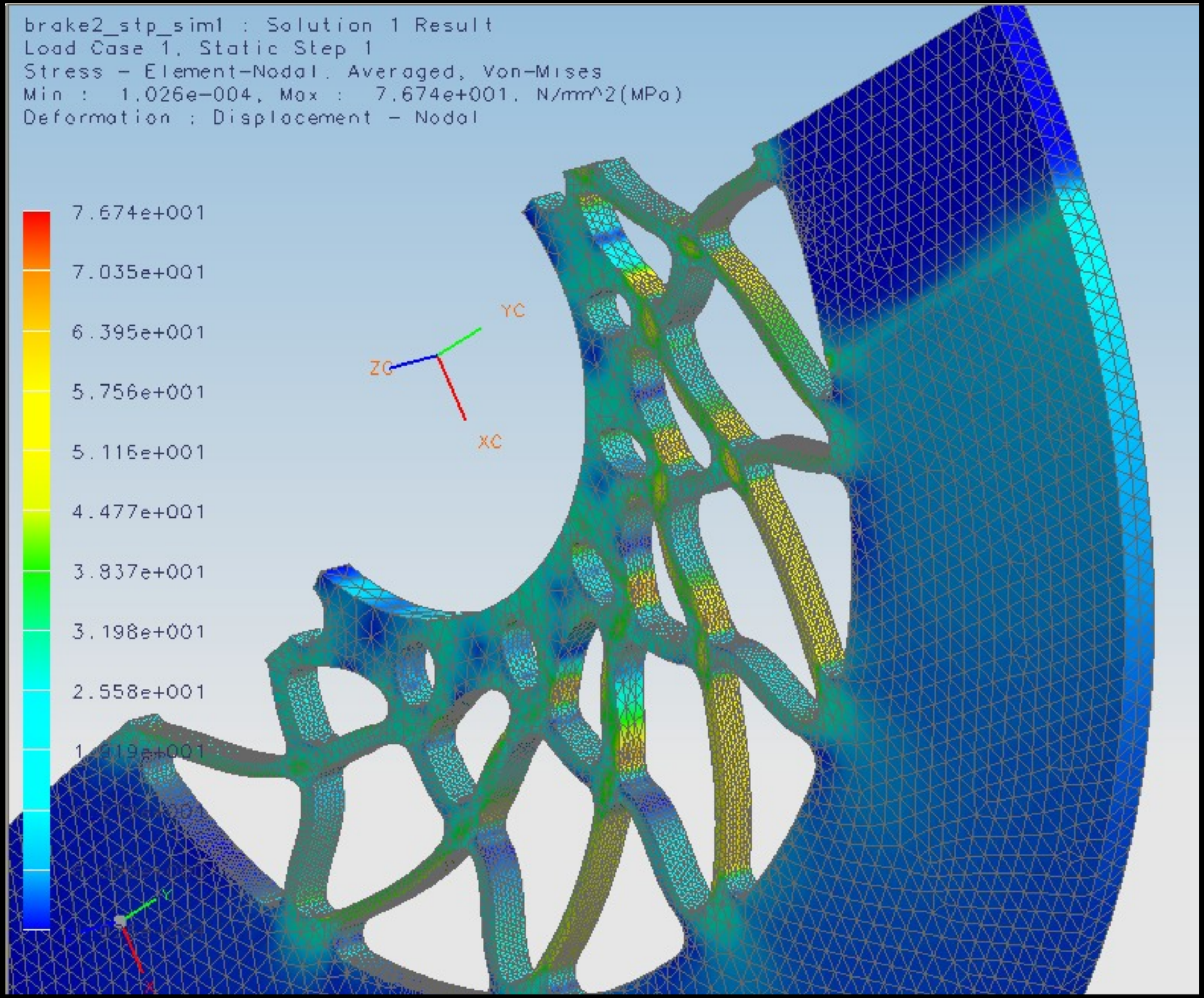
BASICS OF FINITE ELEMENT ANALYSIS

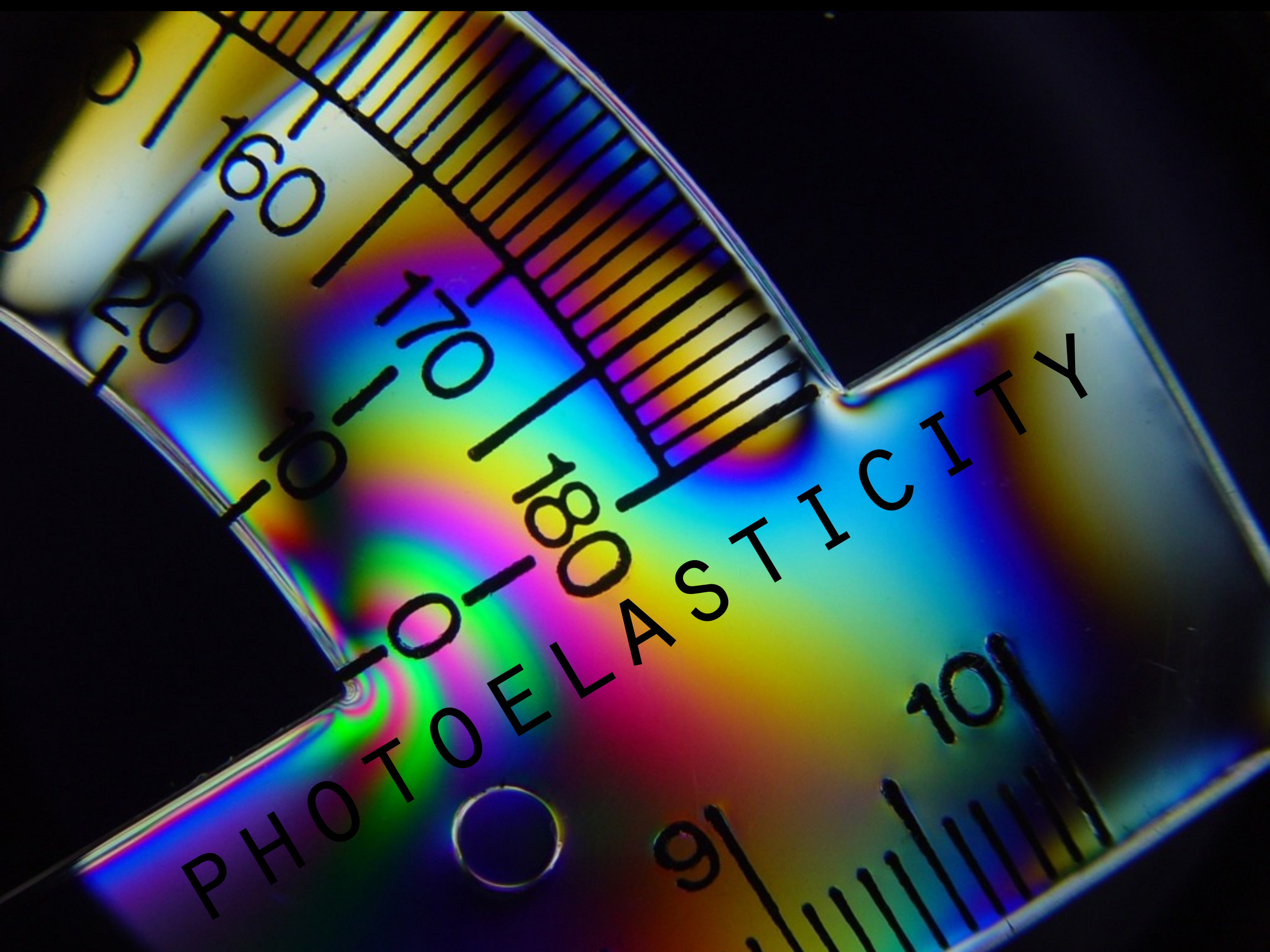


NUMERICAL ANALYSIS



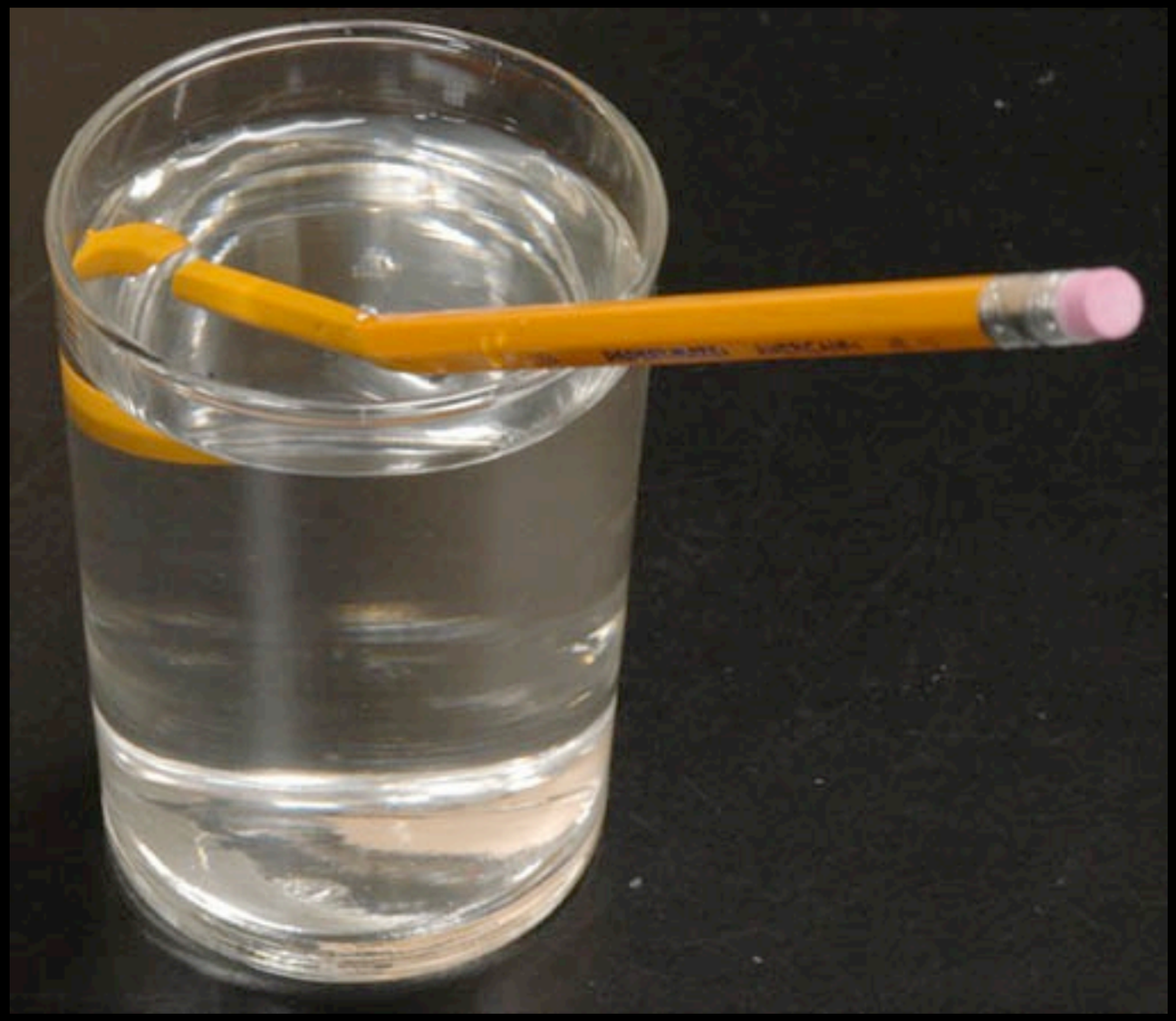
brake2_stp_sim1 : Solution 1 Result
Load Case 1, Static Step 1
Stress - Element-Nodal, Averaged, Von-Mises
Min : 1.026e-004, Max : 7.674e+001, N/mm^2(MPa)
Deformation : Displacement - Nodal




160
170
180
10
20
90
91
101
PHOTOELASTICITY

REFRACTION

A CHANGE IN THE DIRECTION OF A WAVE DUE TO A CHANGE IN ITS SPEED



WIKIPEDIA

BIREFRINGENCE
(DOUBLE REFRACTION)

A MATERIAL PROPERTY THAT SPLITS A RAY OF LIGHT INTO TWO SEPARATE RAYS

PLANAR STRESS-OPTIC LAW

$$R = Ct(\sigma_{11} - \sigma_{22})$$
$$= 2Ct\tau_{max}$$

R - INDUCED PHASE RETARDATION

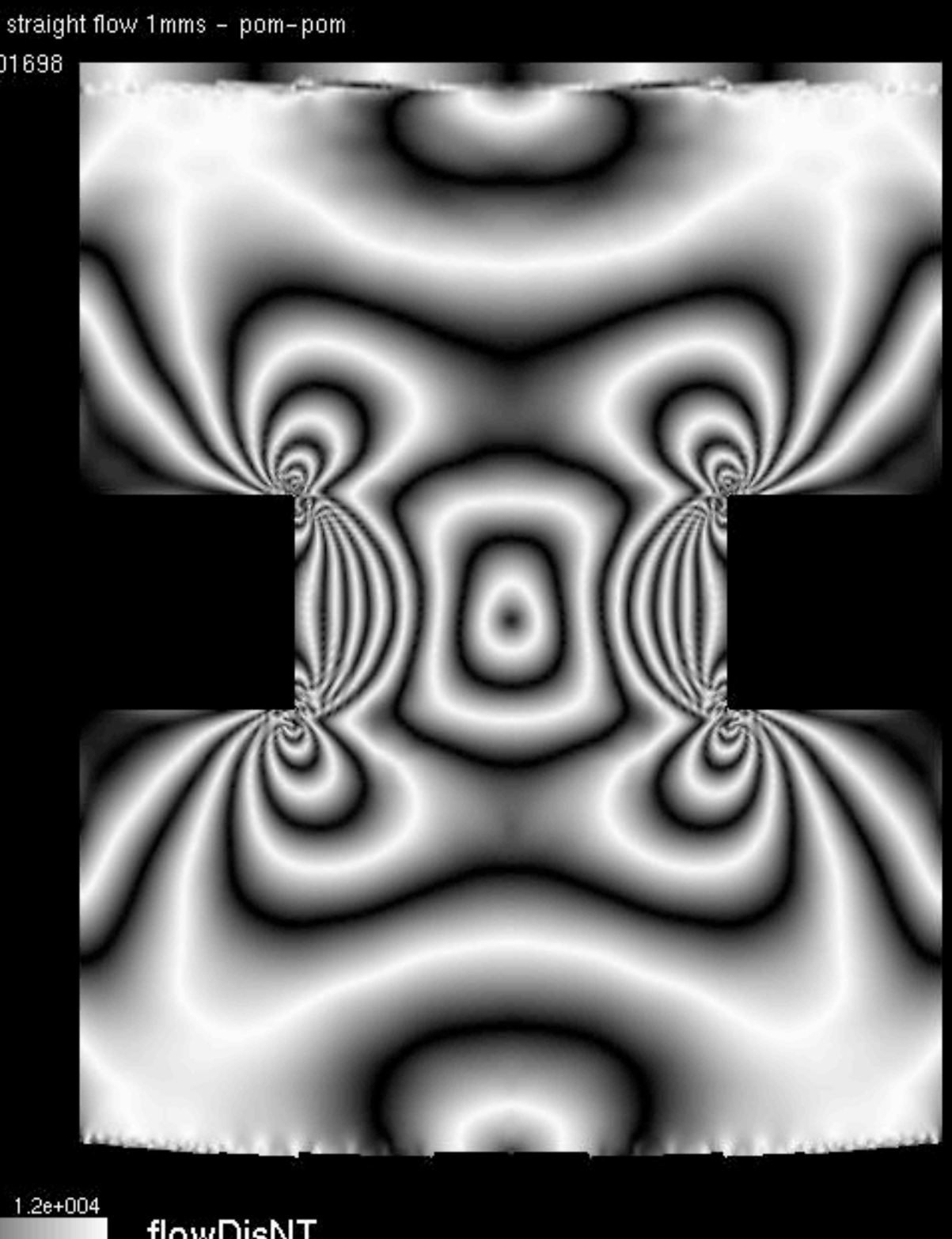
C - MATERIAL STRESS-OPTIC COEFFICIENT

T - SAMPLE THICKNESS

SIGMA_11 - FIRST PRINCIPAL STRESS

SIGMA_22 - SECOND PRINCIPAL STRESS

Interference Fringes



superposition of phase-shifted polarized light waves exiting the material