



# CHARACTERIZATION OF CONTACT ELECTROMECHANICS THROUGH CAPACITANCE-VOLTAGE MEASUREMENTS AND SIMULATIONS

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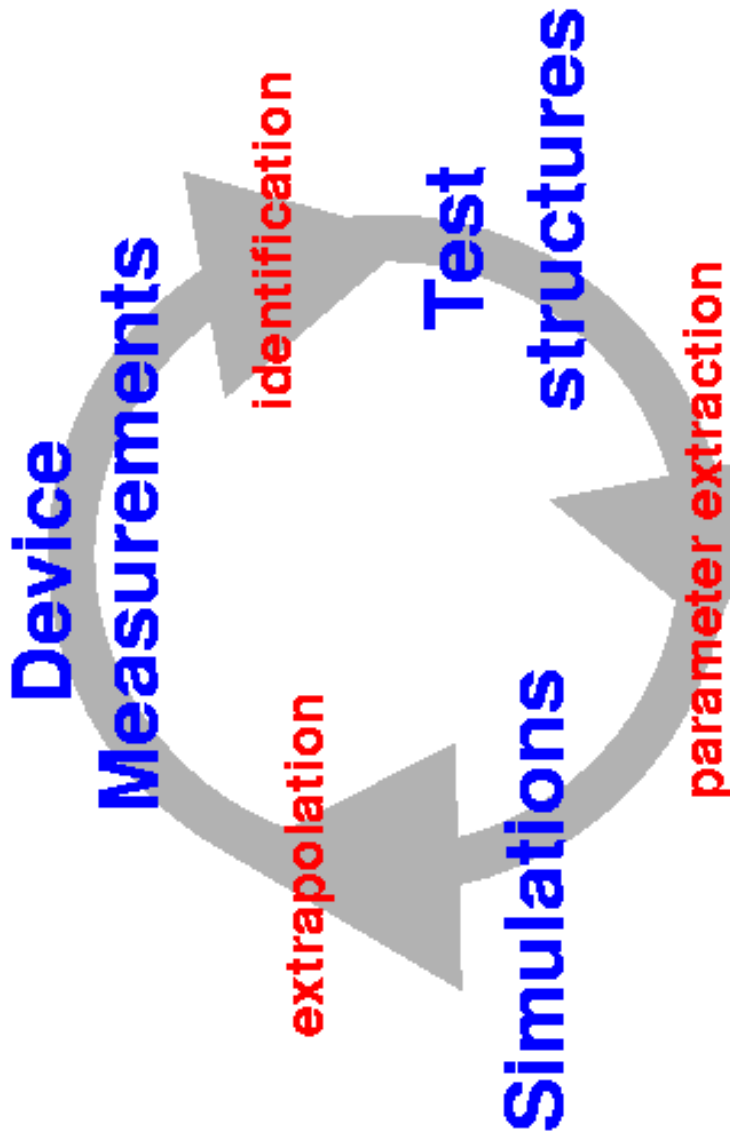
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Ακούρα, R. W. DUTTON, STANFORD UNIVERSITY



# WHEEL OF FORTUNE

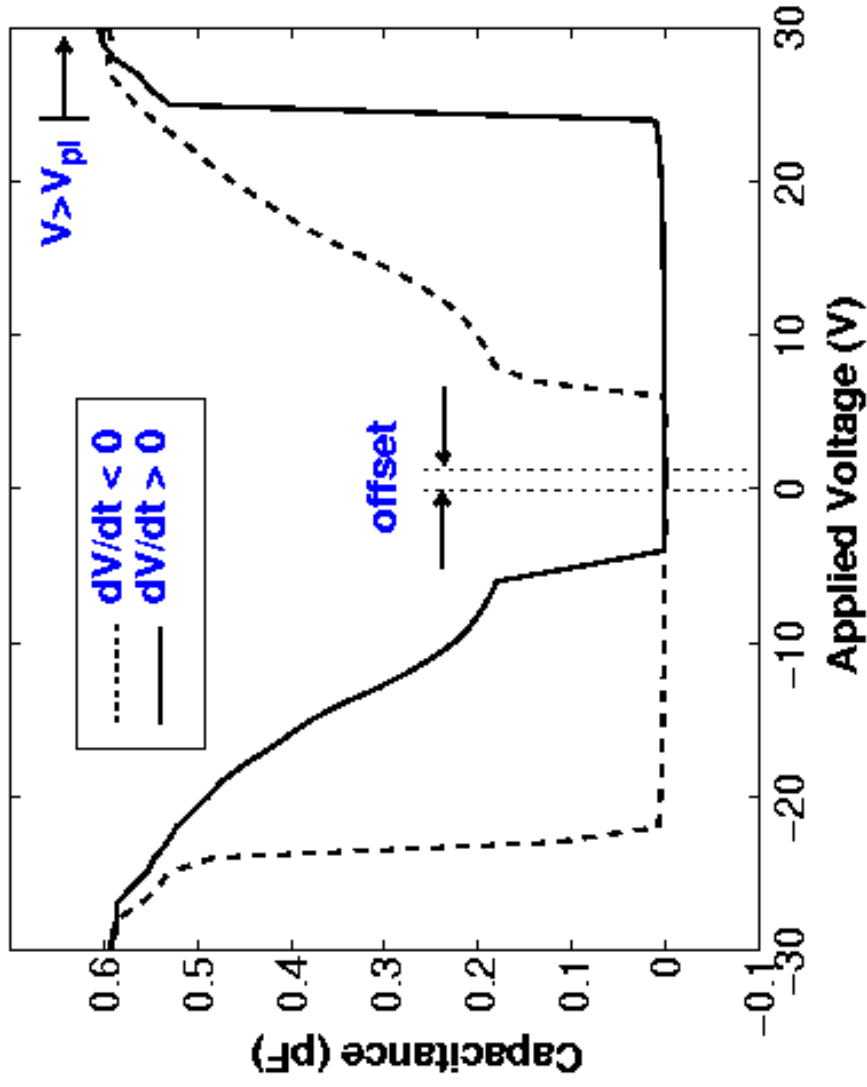


why might simulation results based on parameters extracted from test structures not match experimental device measurements?



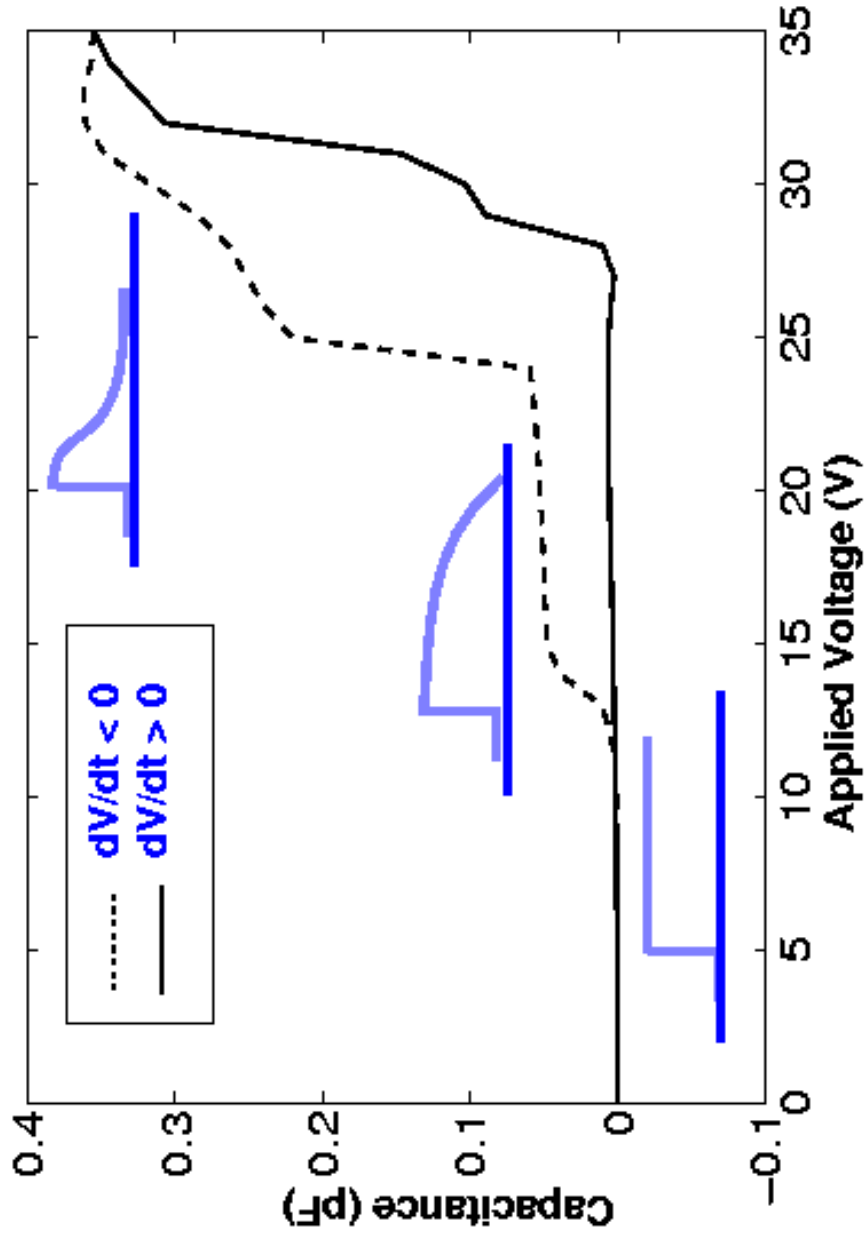


# CV: FIXED-FIXED BEAM



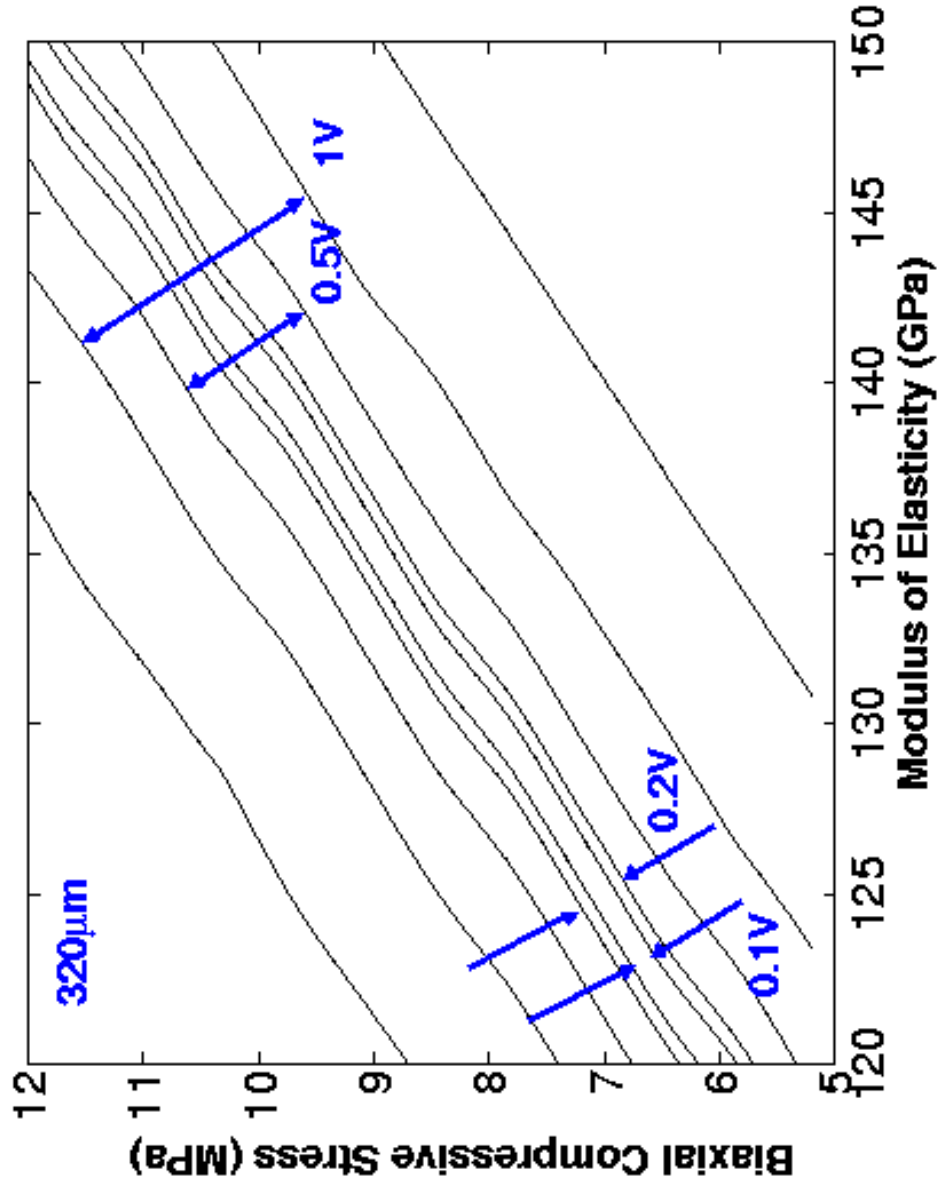


# CV: CANTILEVER BEAM



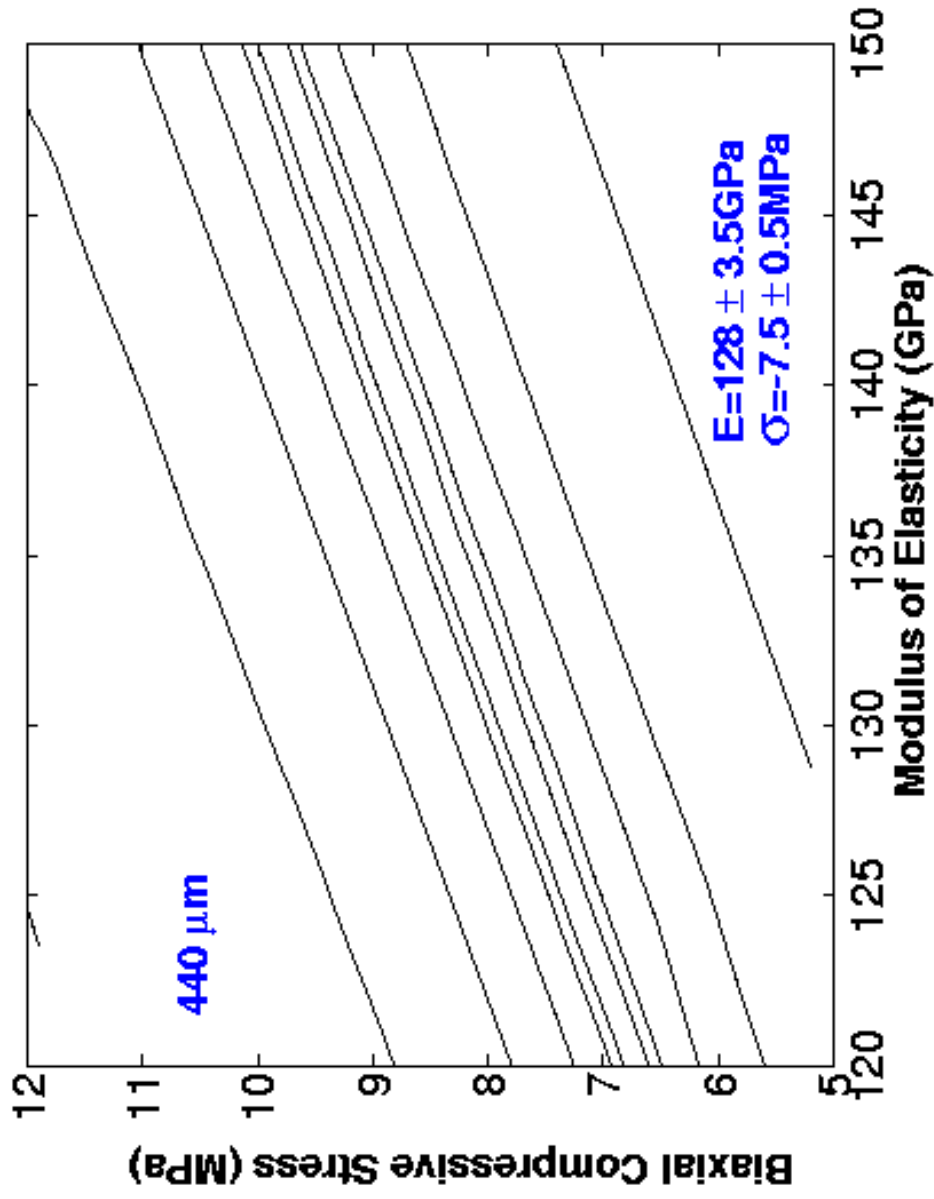


# CONTOURS OF VPI





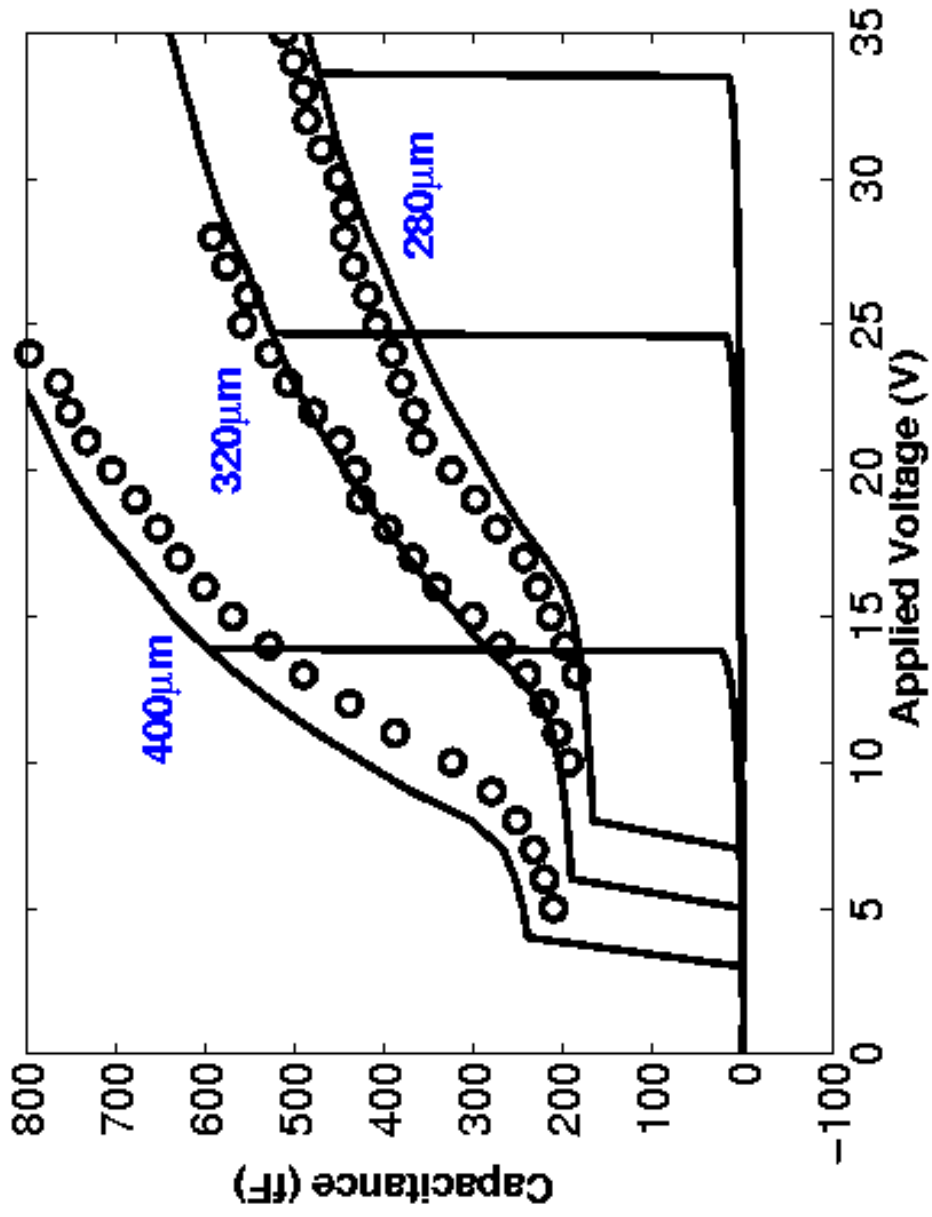
# CONTOURS OF VPI







# CV CURVES

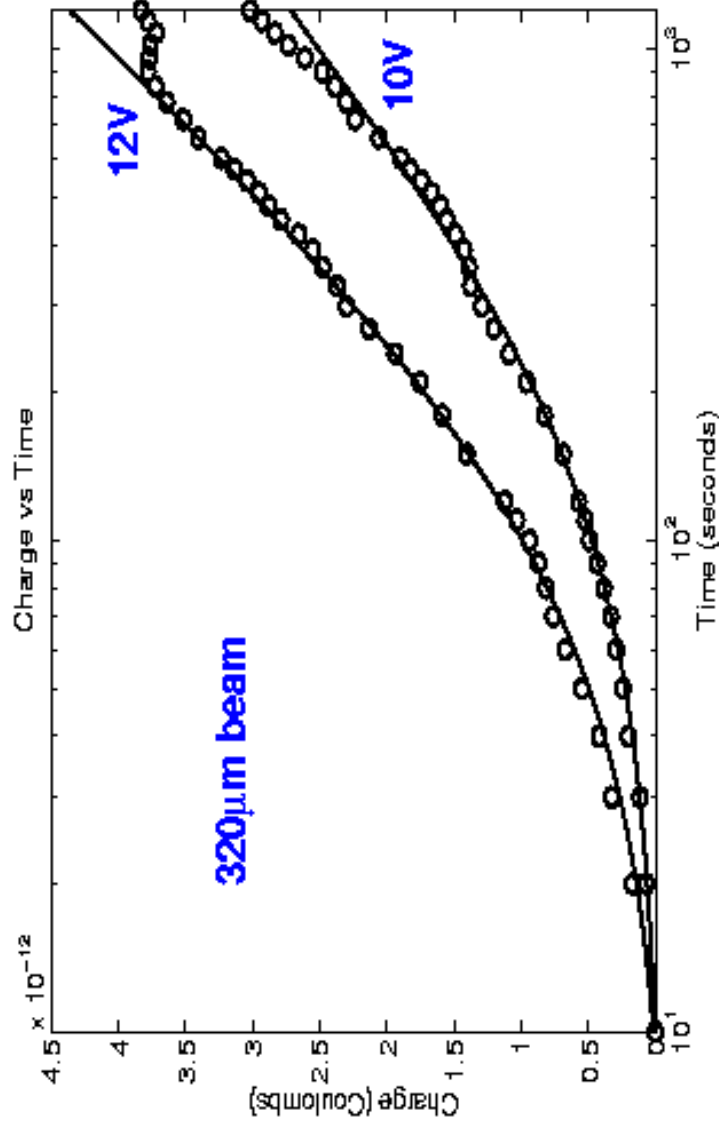






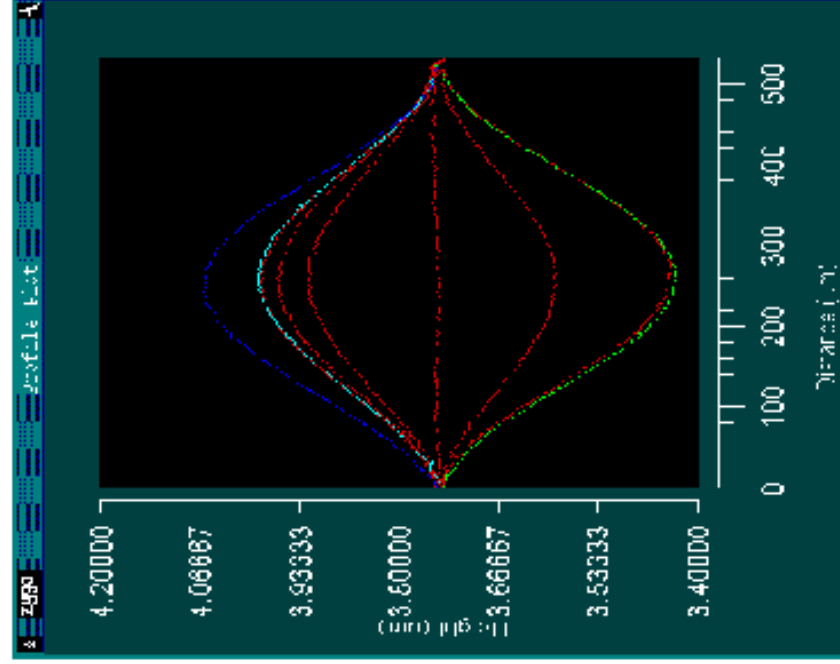
# NITRIDE CHARGING

$$\frac{dQ}{dt} = kA \left[ 1 - \exp\left(-\frac{t}{t_0}\right) \right]$$

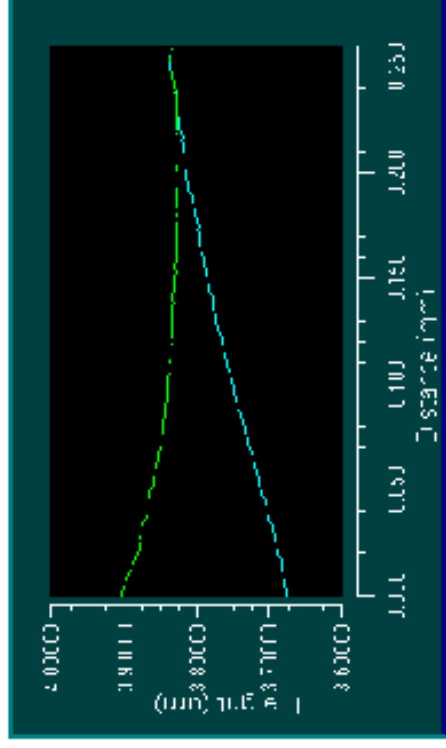
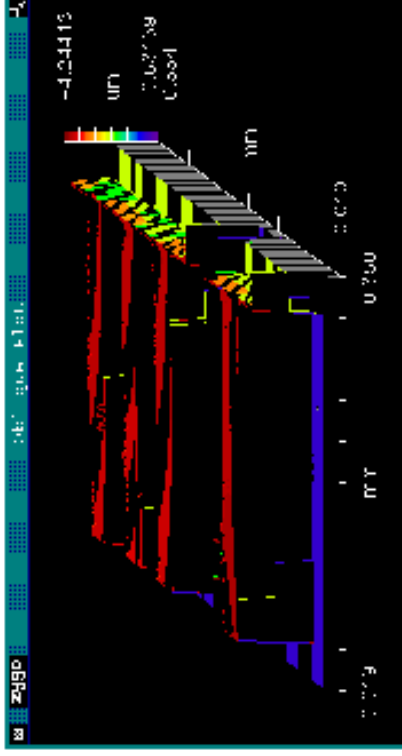




# ANOMALIES



**Bowing of fixed-fixed beams  
(range of amplitudes)**



**Curling of cantilevers  
(opposite stress gradients)**

