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Simulation of the NRC Wide-Plate Tests Performed in at Oakridge Nat. Labs.

Invited Talk given at Lund Institute of Technology, Lund, Orationem Meam

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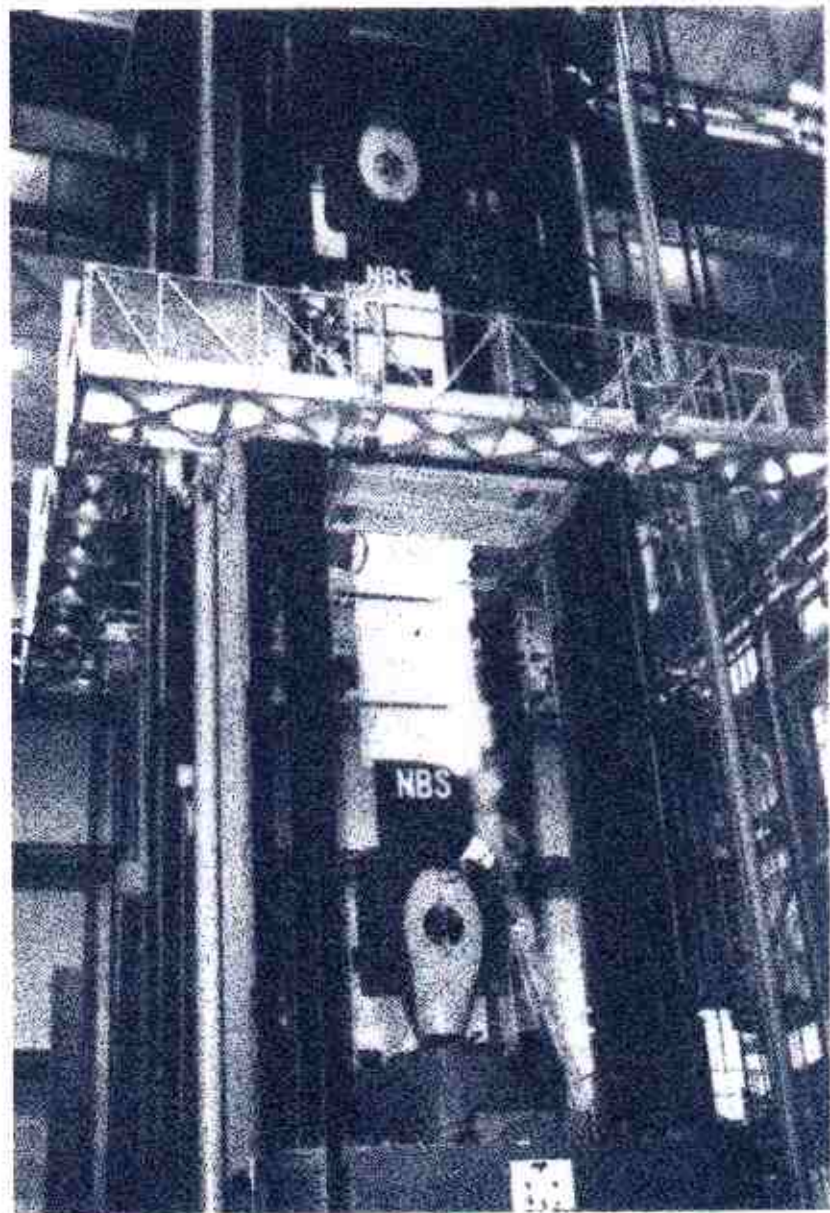
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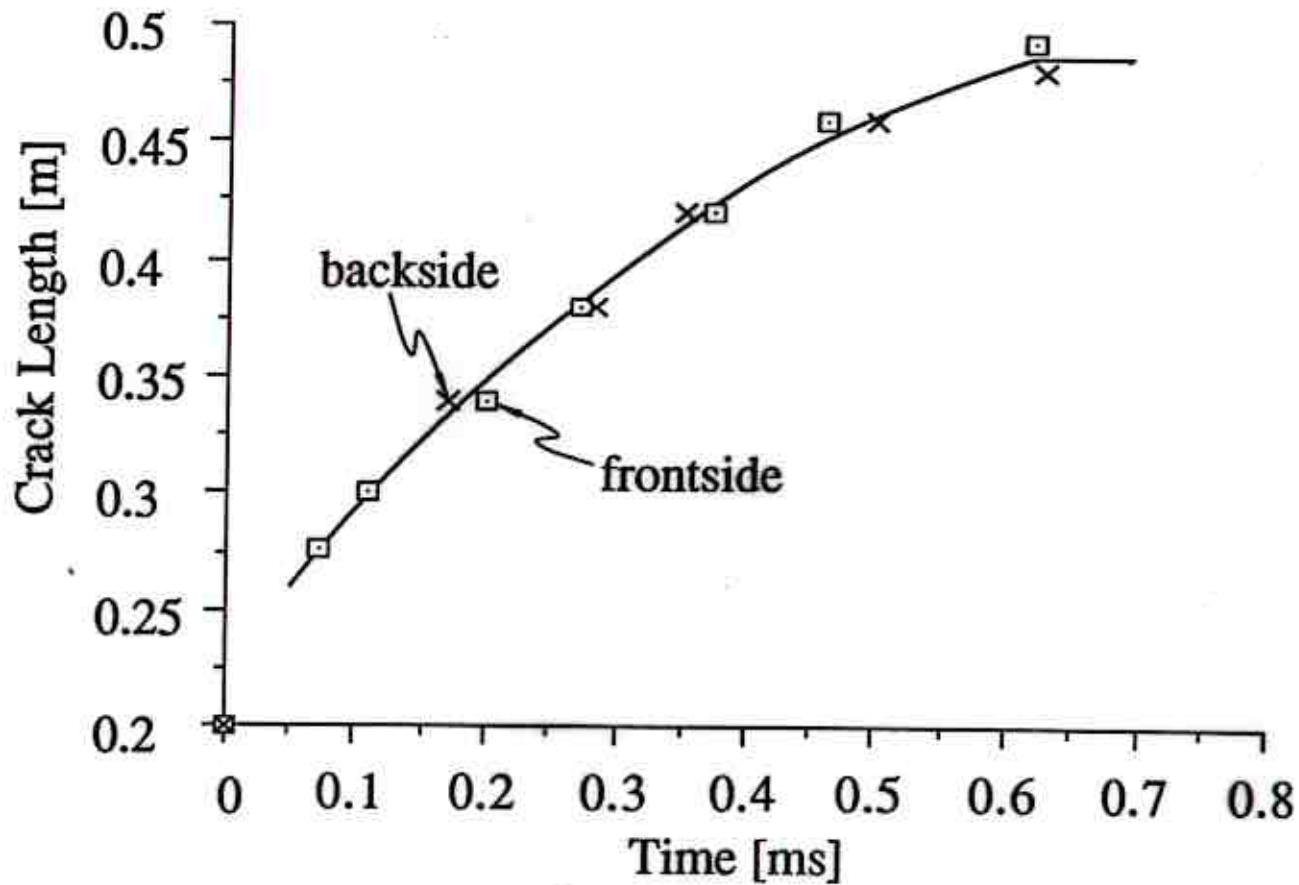
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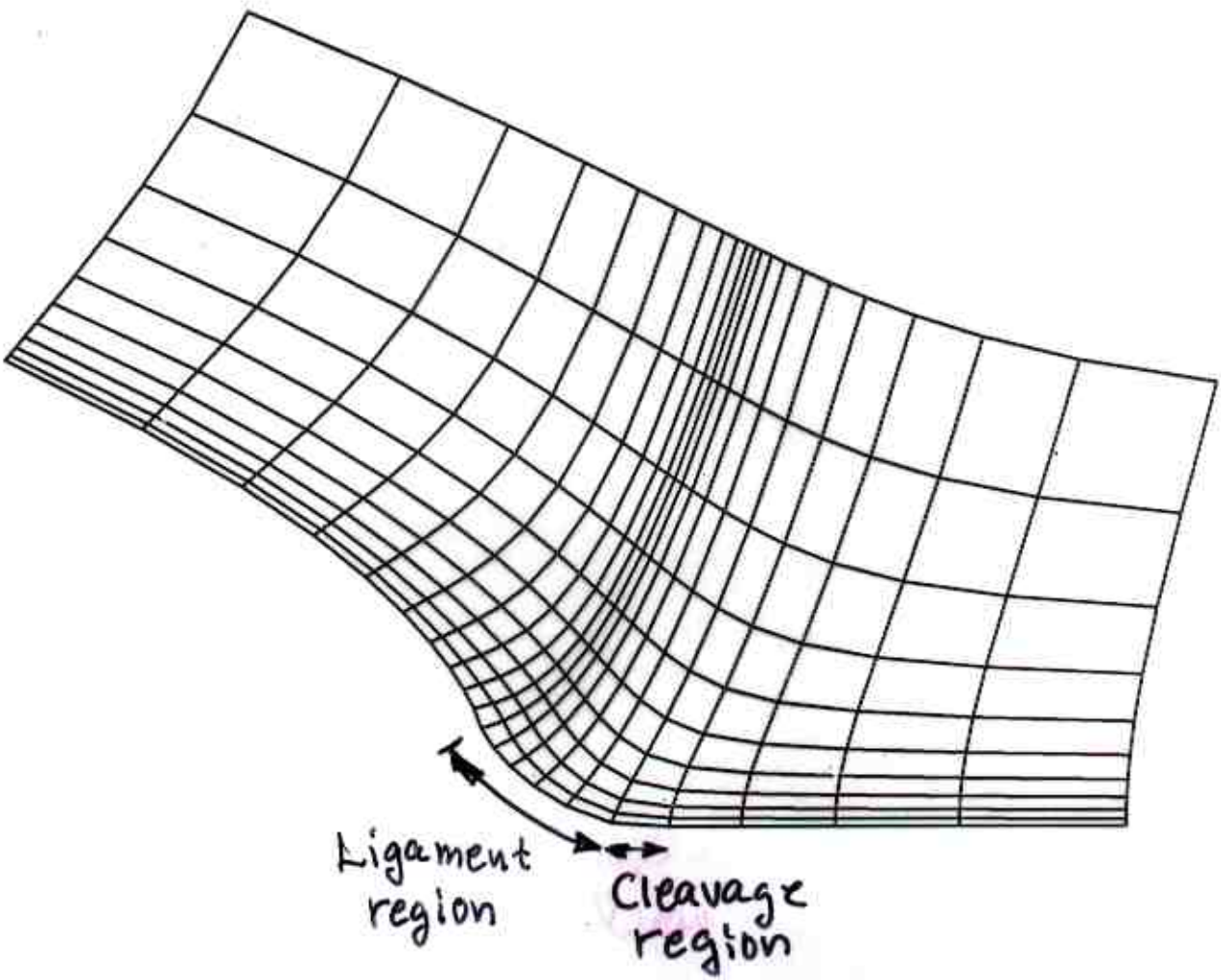
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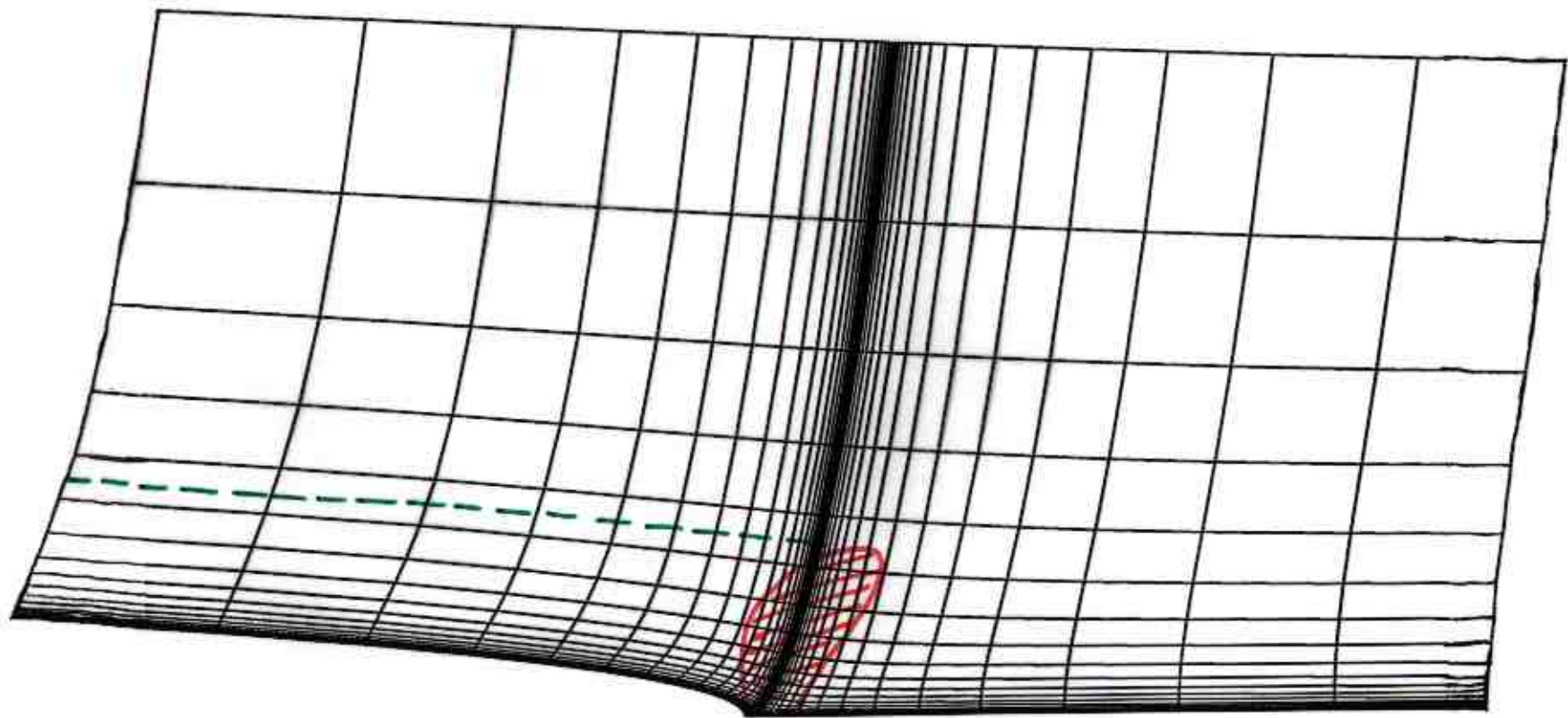
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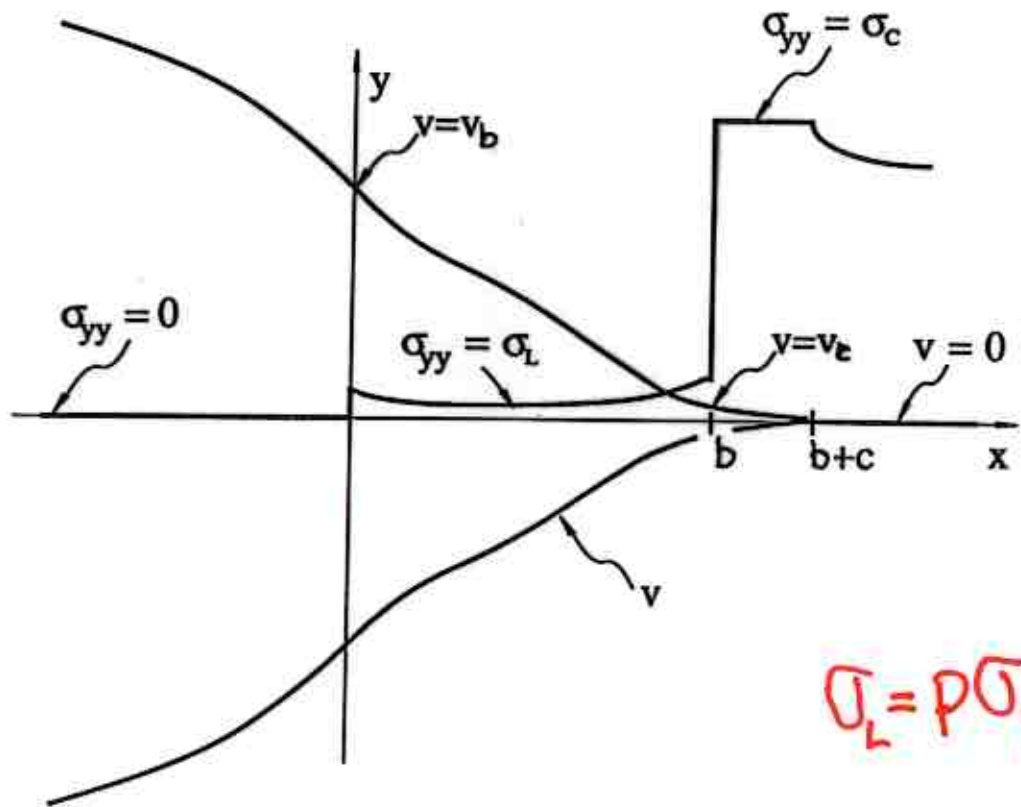
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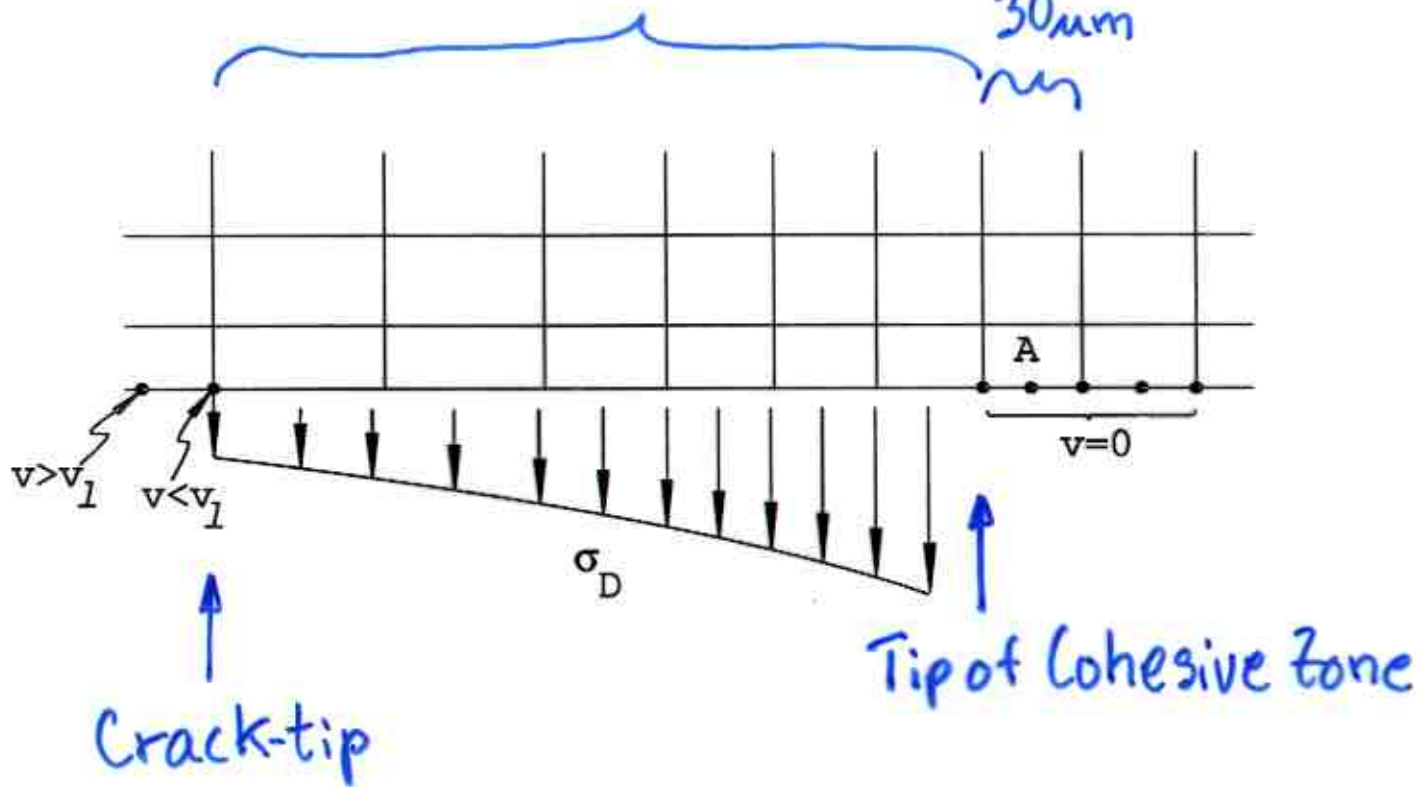




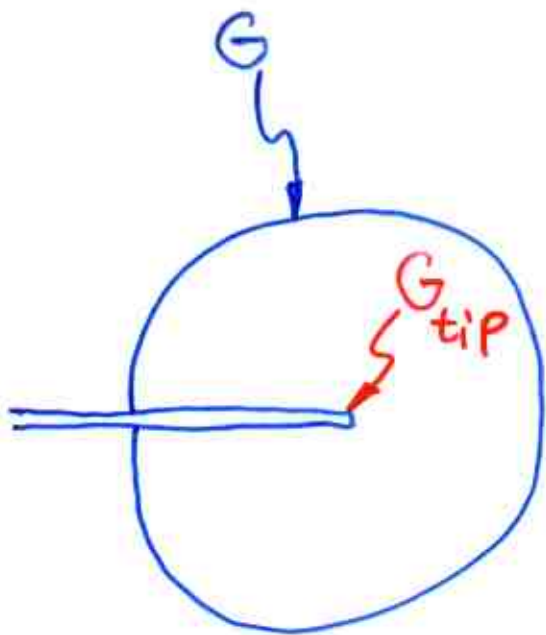
$$\sigma_L = P \sigma_Y \left[1 + \left(\frac{4\sqrt{3} \mu \dot{\gamma}}{\log \dot{\gamma}_0 \sigma_Y} \right)^{\frac{1}{n}} \right]$$

Ligament Region

30mm

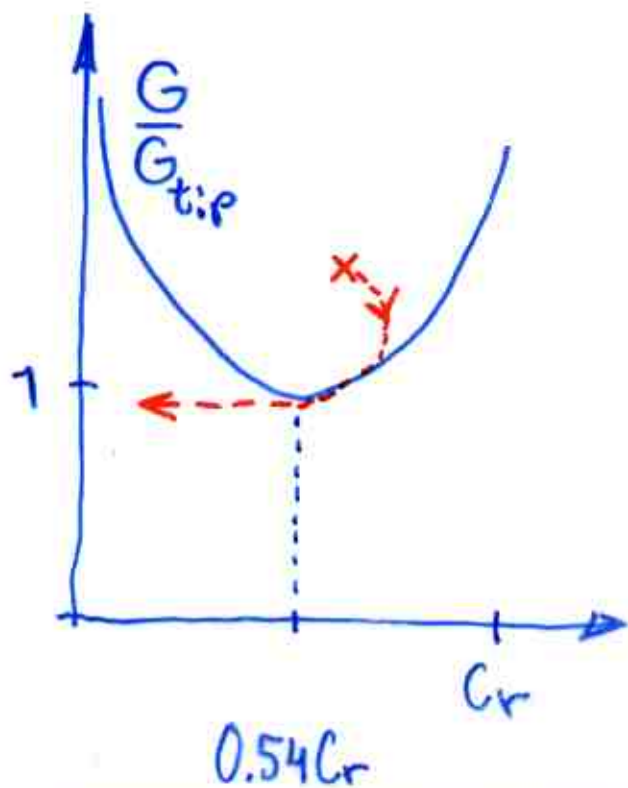
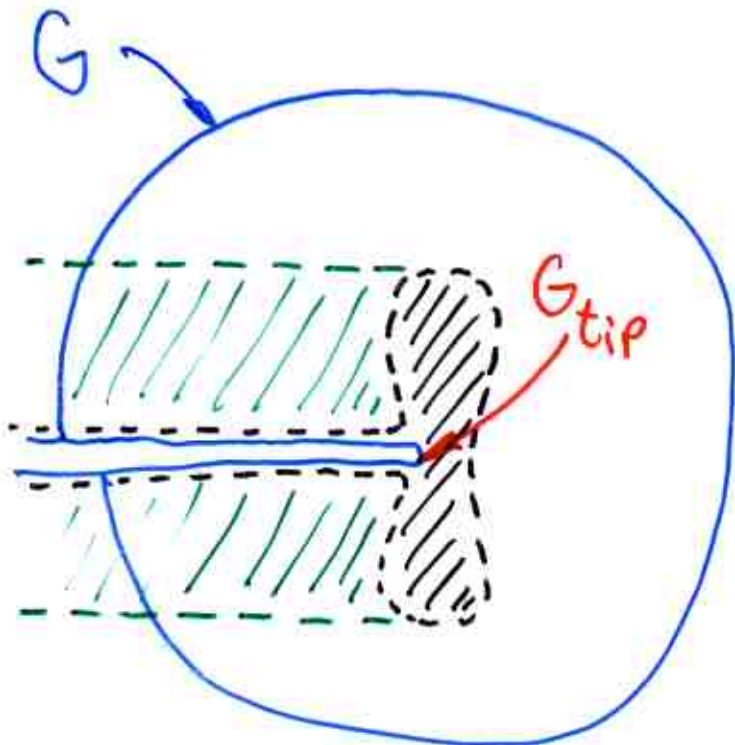


$$\sigma_D = P \sigma_0 \left\{ 1 + \left[\frac{4\sqrt{3} M \dot{v}}{\lg r \dot{\gamma}_0 \sigma_0} \right]^{\frac{1}{n}} \right\}$$



Freund & Hutchinson 1985, $n=1$

$$\dot{\epsilon}^{pl} = \dot{\gamma}_0 (\sigma - \sigma_0)^n$$



TEST WP-1.5

TOP HALF

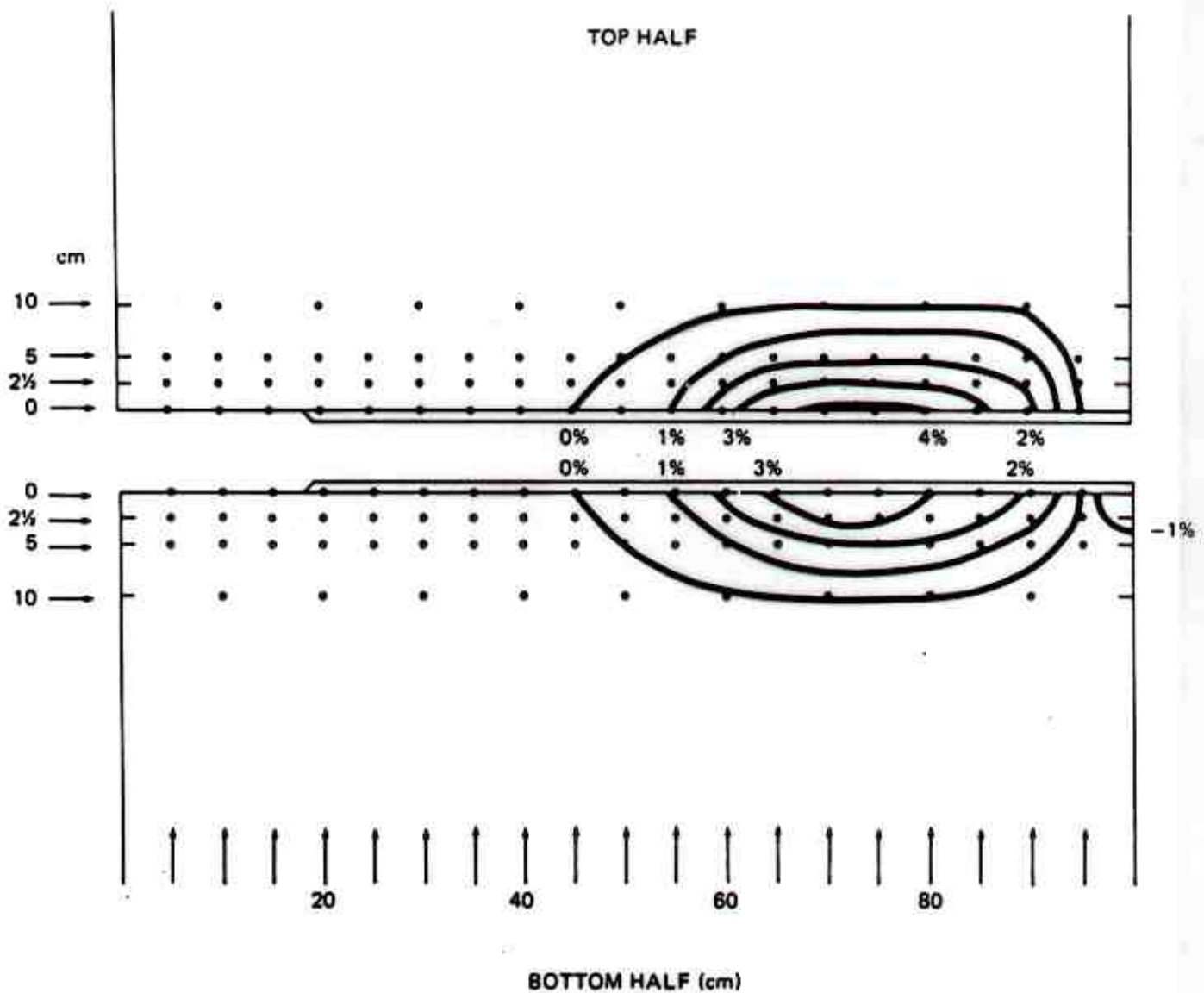
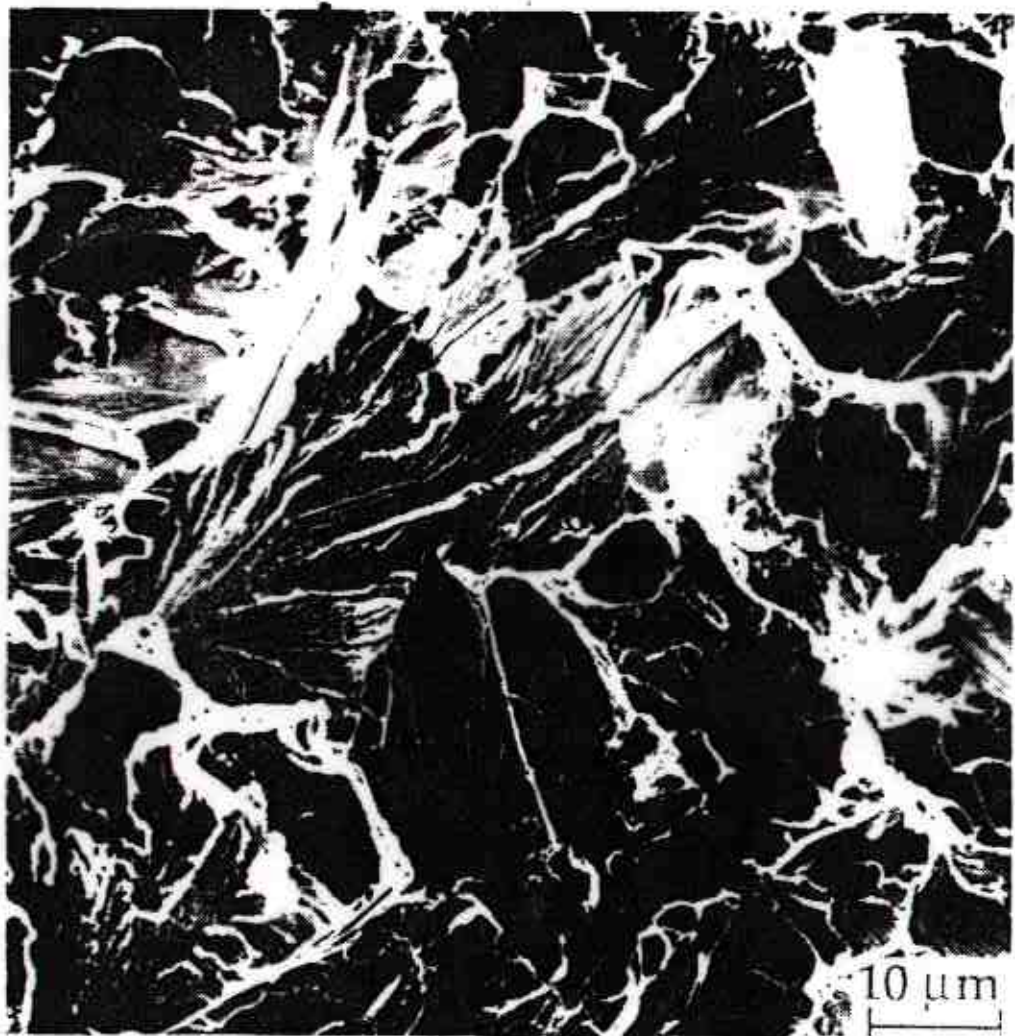
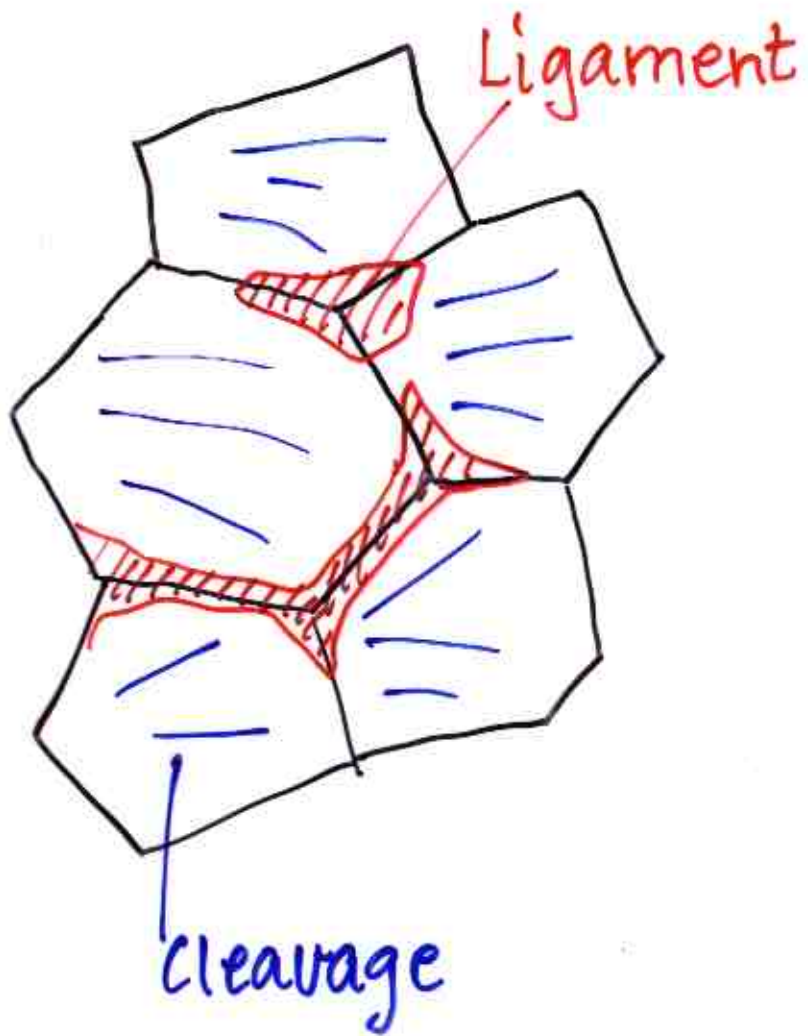
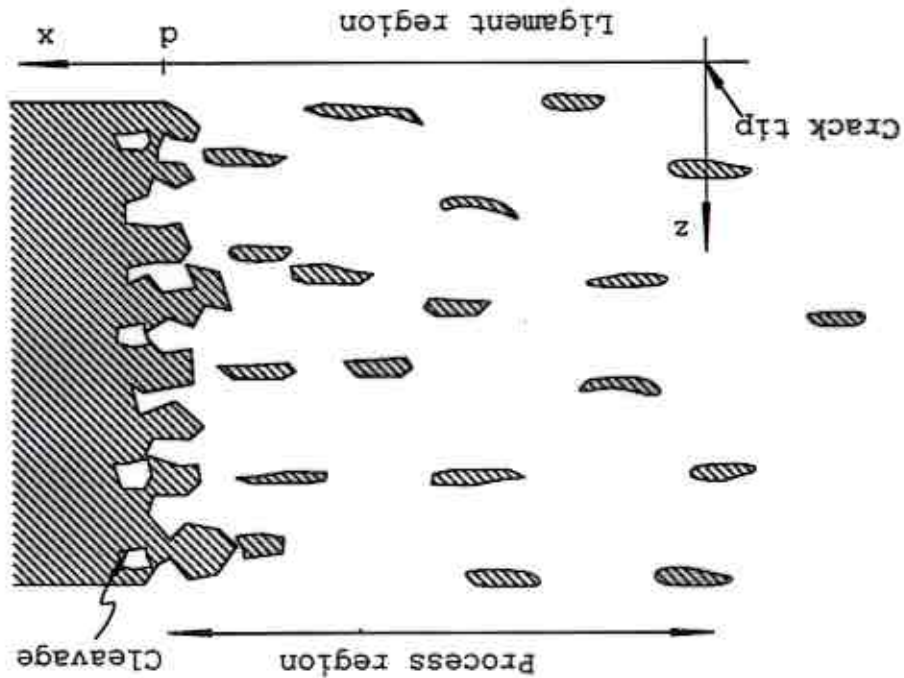


Fig. 6.60. Posttest contour map of plastic reduction in thickness: Test WP-1.5.



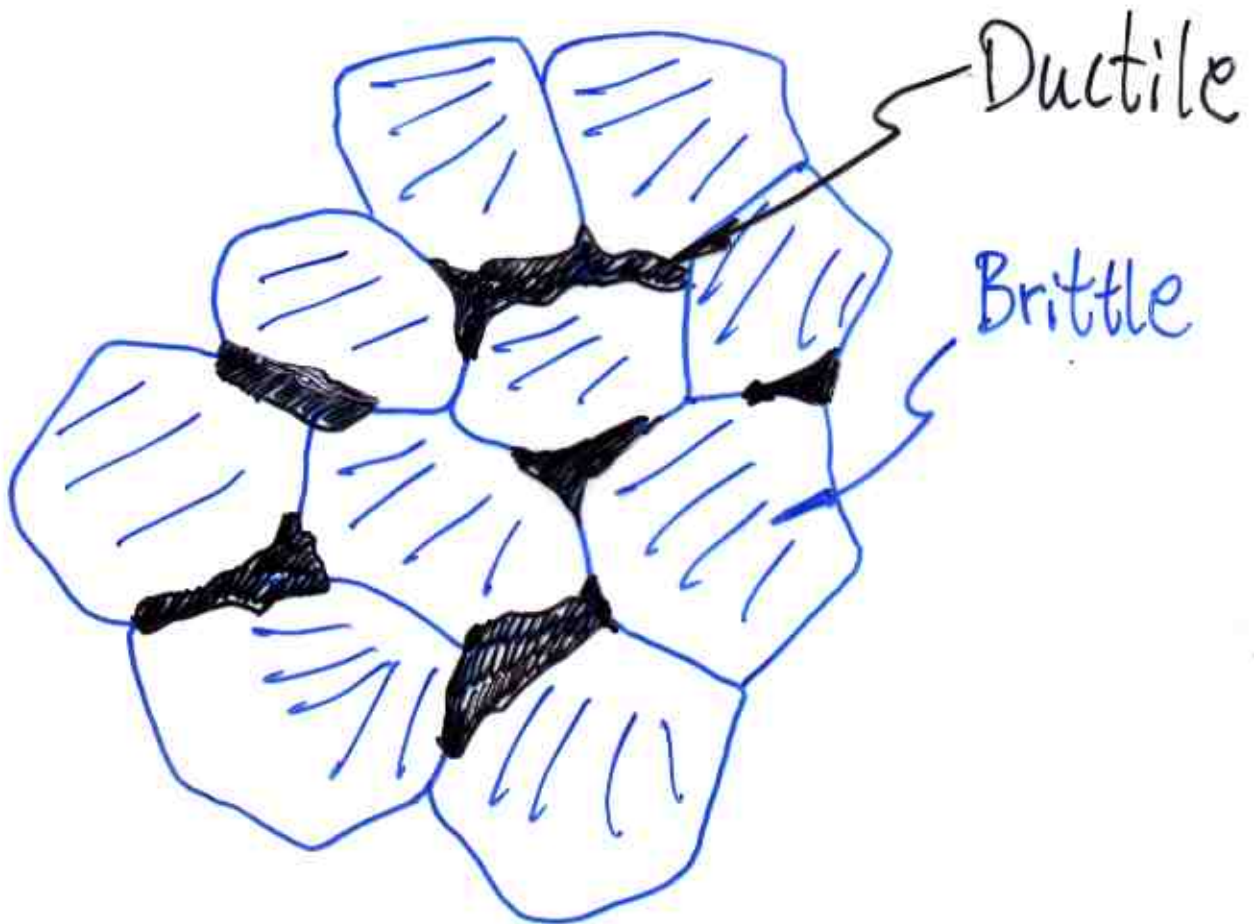


Crack Surface



Cleavage

Fibrous



D. Alexander & I. Johansson

10-20% Ductile

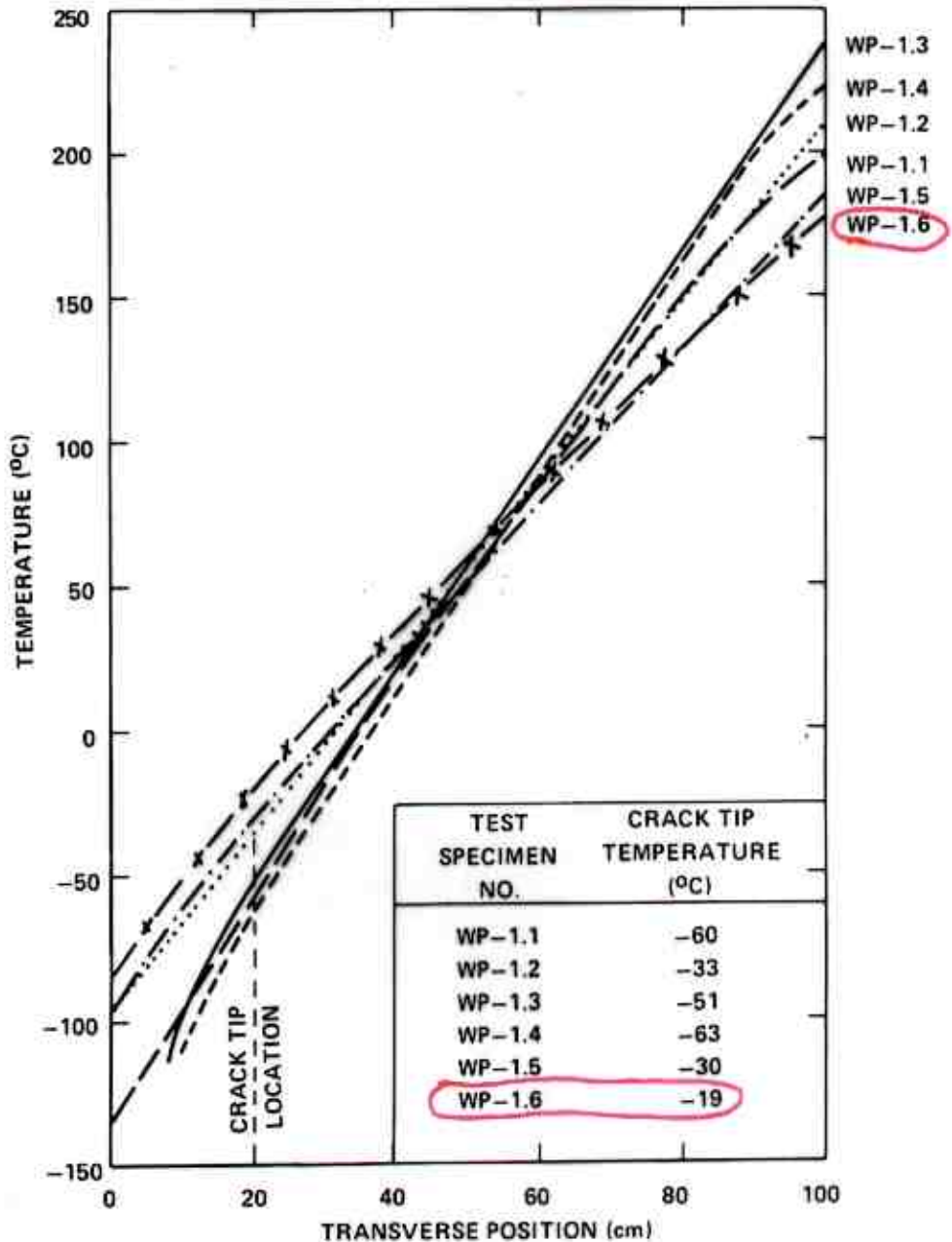


Fig. 6.1. Transverse temperature profiles at approximate time of crack initiation-arrest events: Series WP-1.

