

Figure S1: Photograph of fractured soda-lime glass specimen with cascading crack bifurcations.

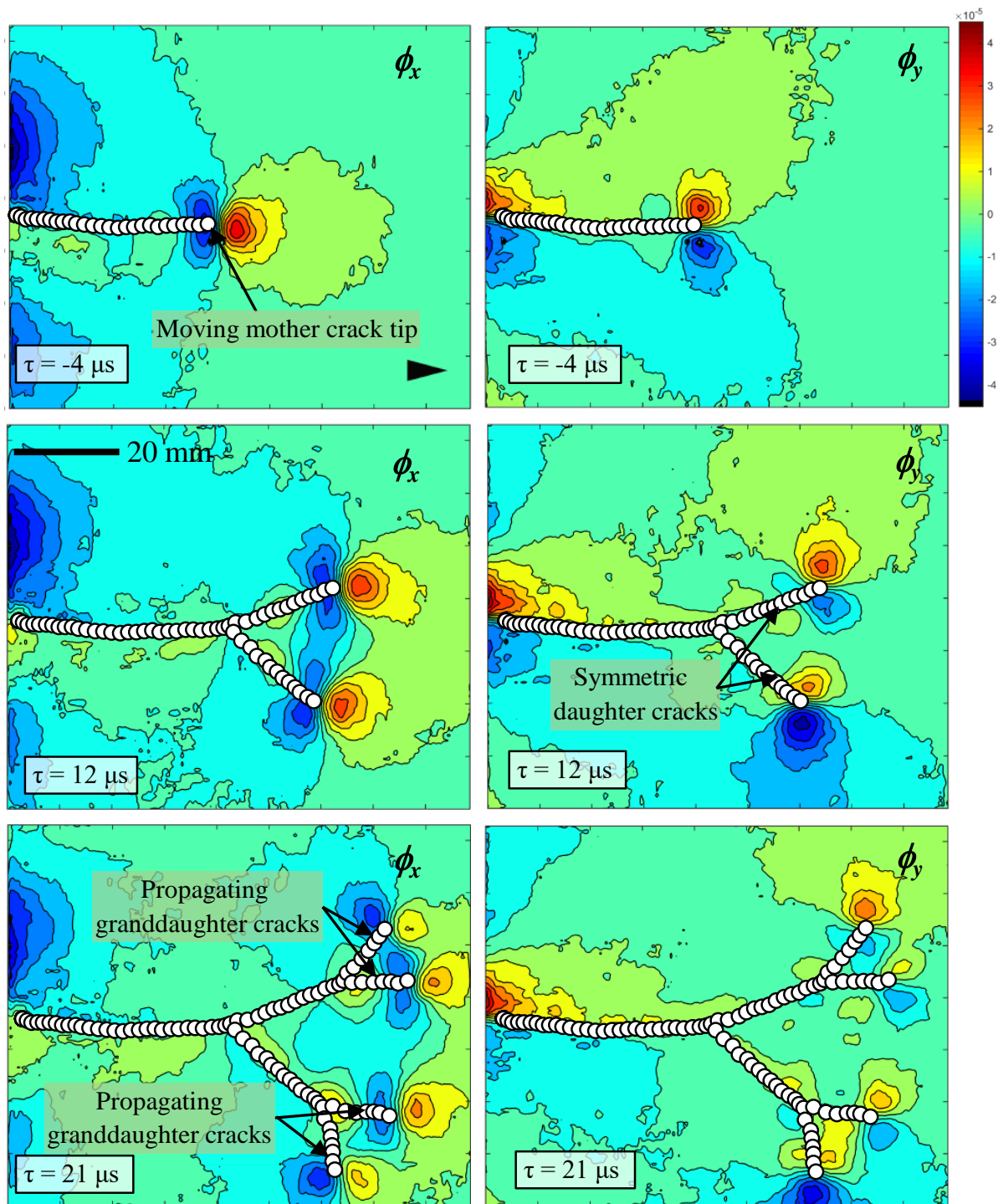


Figure S2: Contours of angular deflections (contour interval = 7×10^{-6} rad) in 150 mm \times 150 mm soda-lime glass plate at different time instants. The arrowhead (in the top left image) shows crack growth direction. Circular markers indicate crack-tip locations in the previous frames. ($\tau = 0$ corresponds to crack branching event.)

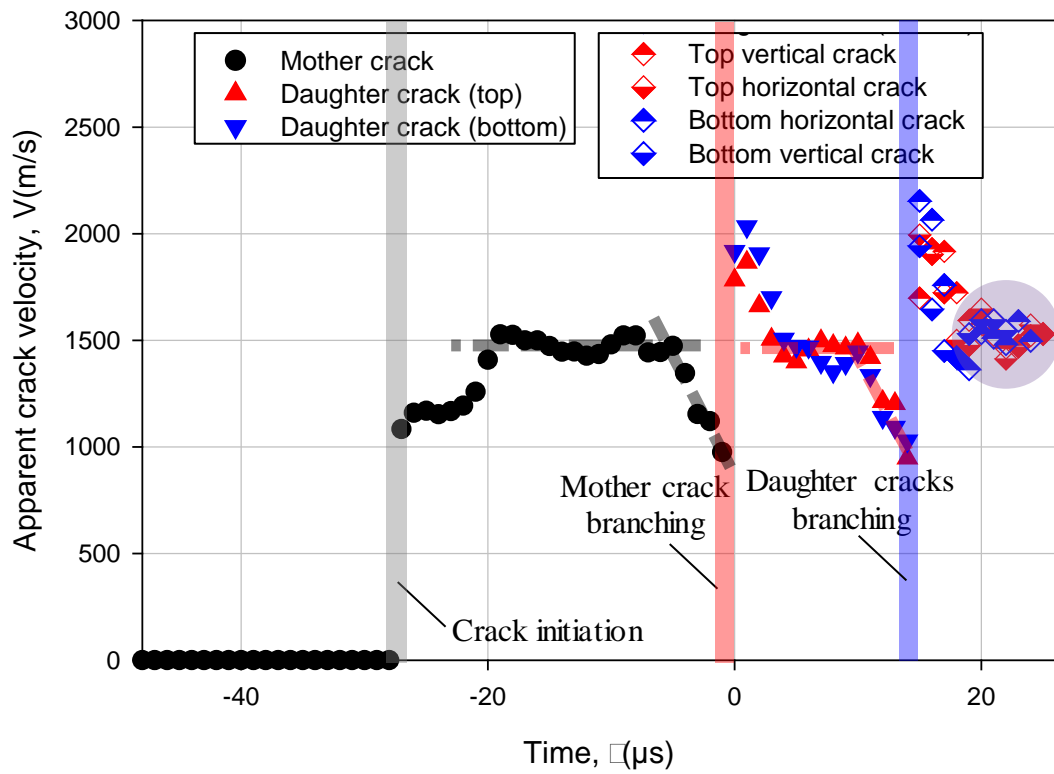


Figure S3: Apparent/microscale crack velocity histories from 150 mm \times 150 mm soda-lime glass plate. ($\tau = 0$ corresponds to mother crack branching event; thick broken lines and shaded zones are manually overlaid to highlight/suggest data trends.)

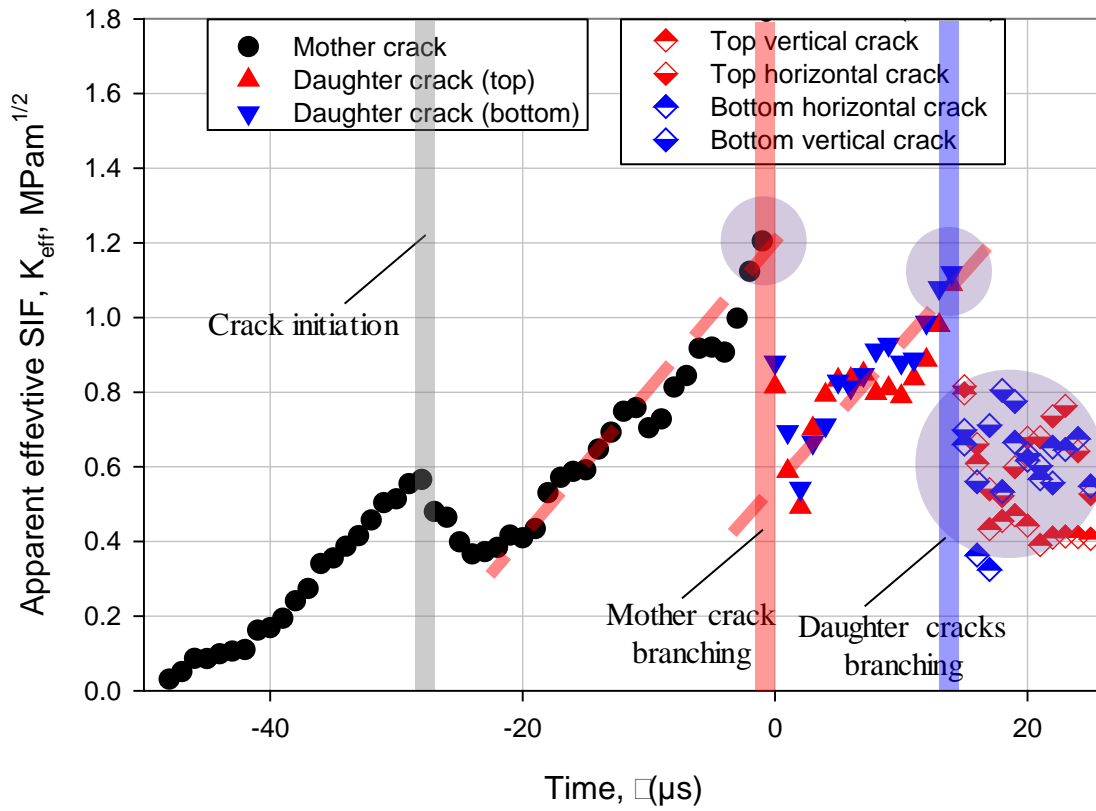


Figure S4: Effective stress intensity factor ($K_{eff} = \sqrt{K_I^2 + K_{II}^2}$) histories for 150 mm \times 150 mm soda-line glass plate ($\tau = 0$ corresponds to mother crack branching event; thick broken lines and shaded zones are manually overlaid to highlight/suggest data trends.)

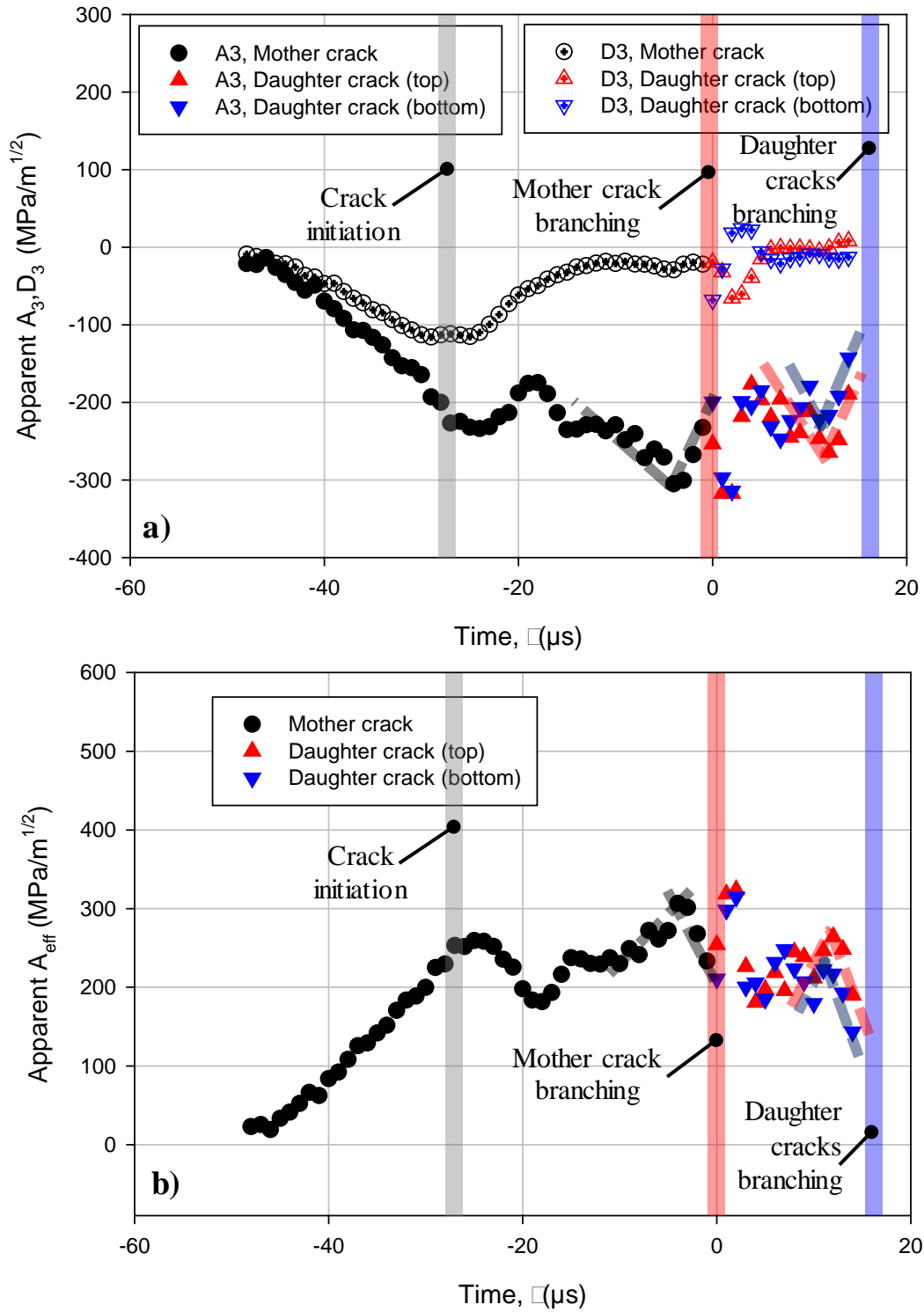


Figure S5: Higher order term histories for 150 mm \times 150 mm soda-lime glass plate: (a) A_3 and D_3 , (b) $A_{\text{eff}} = \sqrt{A_3^2 + D_3^2}$ ($\tau = 0$ corresponds to mother crack branching event; thick broken lines are manually overlaid to highlight/suggest data trends.)

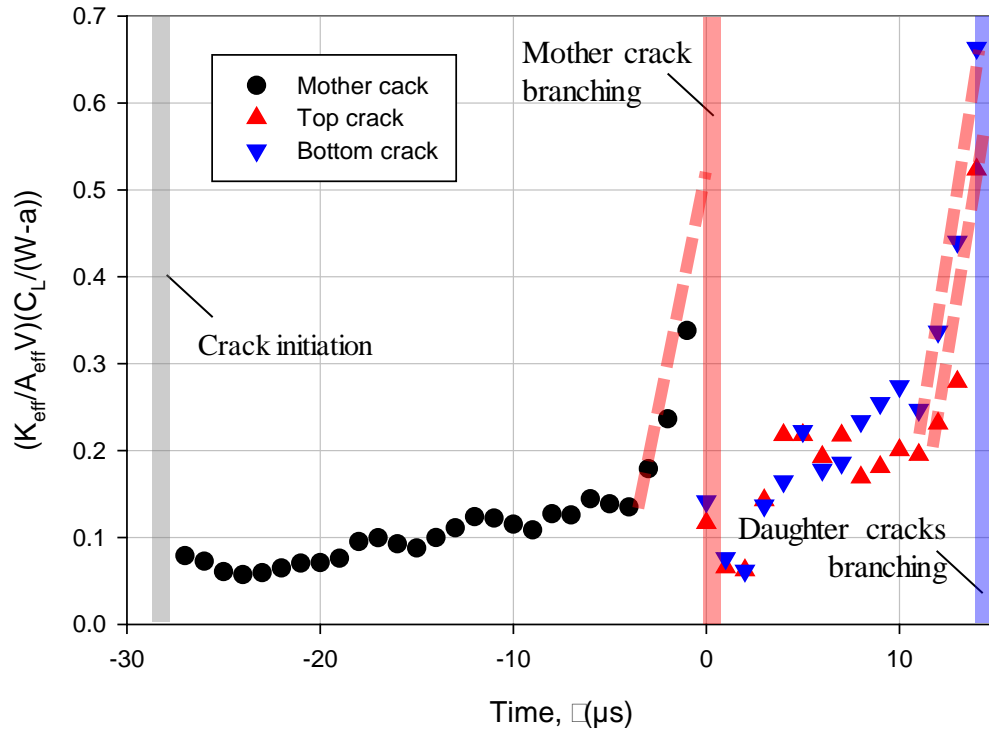


Figure S6: Non-dimensional parameter, $\hat{K} = \left(\frac{K_{eff}}{A_{eff} V} \right) \left(\frac{C_L}{W-a} \right)$ histories from DGS for 150 mm \times 150 mm soda-line glass plates. (Time, $\tau = 0$ corresponds to mother crack branching event; thick broken lines are manually overlaid to highlight/suggest data trends.)

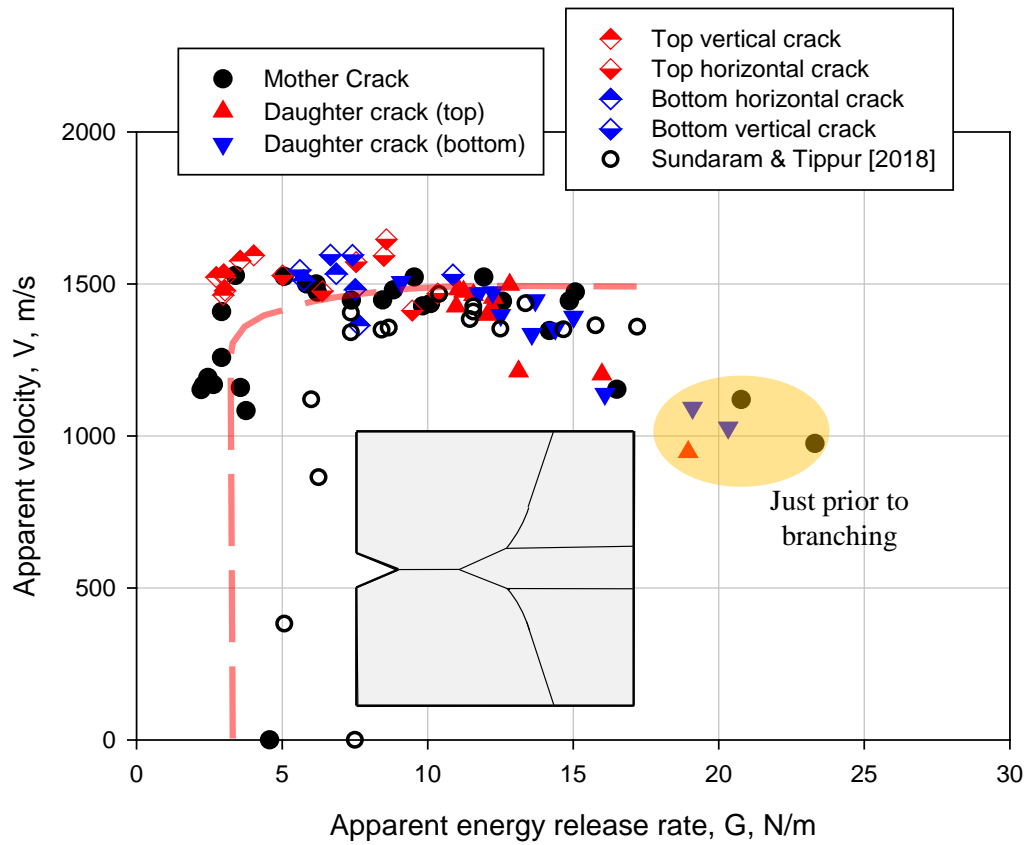


Figure S7: Dependence of energy release rate (G) and crack velocity (V) for 150 mm \times 150 mm soda-lime glass plates. (The heavy broken line and shared region are manually overlaid to show the trendline.)