

# Congratulations!

updates

## Random critical point separates brittle and ductile yielding transitions in amorphous materials

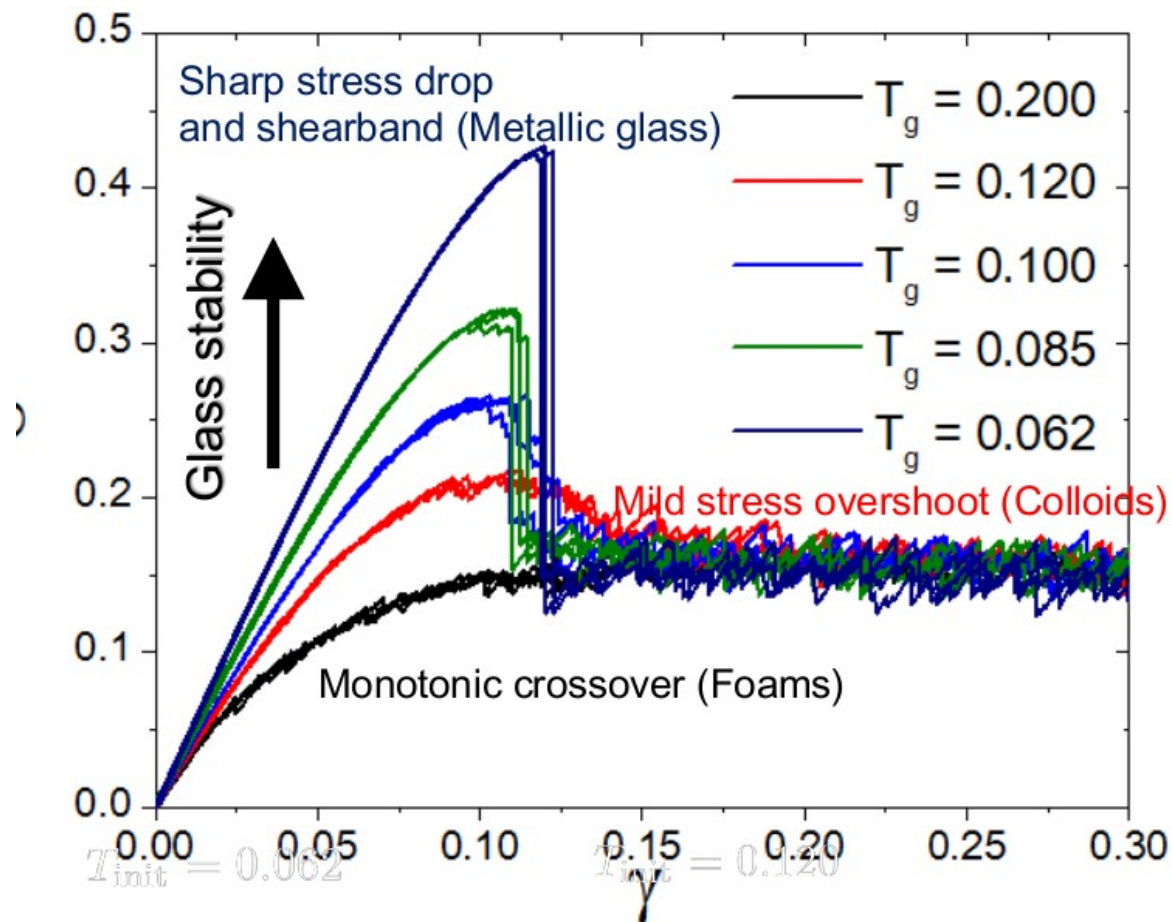
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**We combine an analytically solvable mean-field elasto-plastic model with molecular dynamics simulations of a generic glass** similar to the Gutenberg–Richter law for earthquakes (12, 13, 16–19).

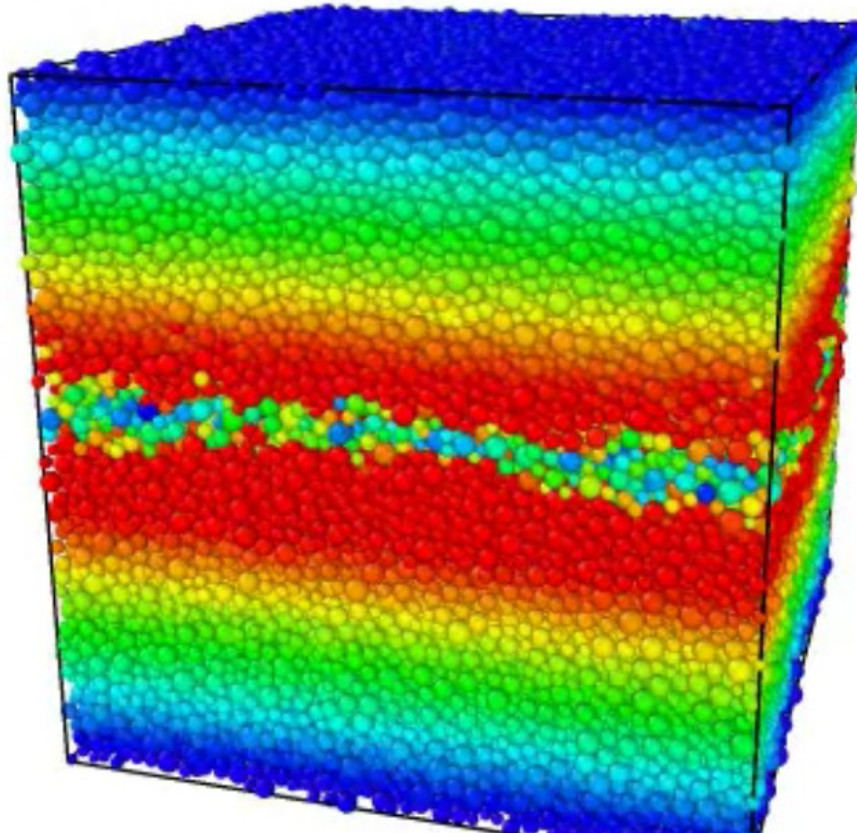
# Steady state? Large strain behavior?



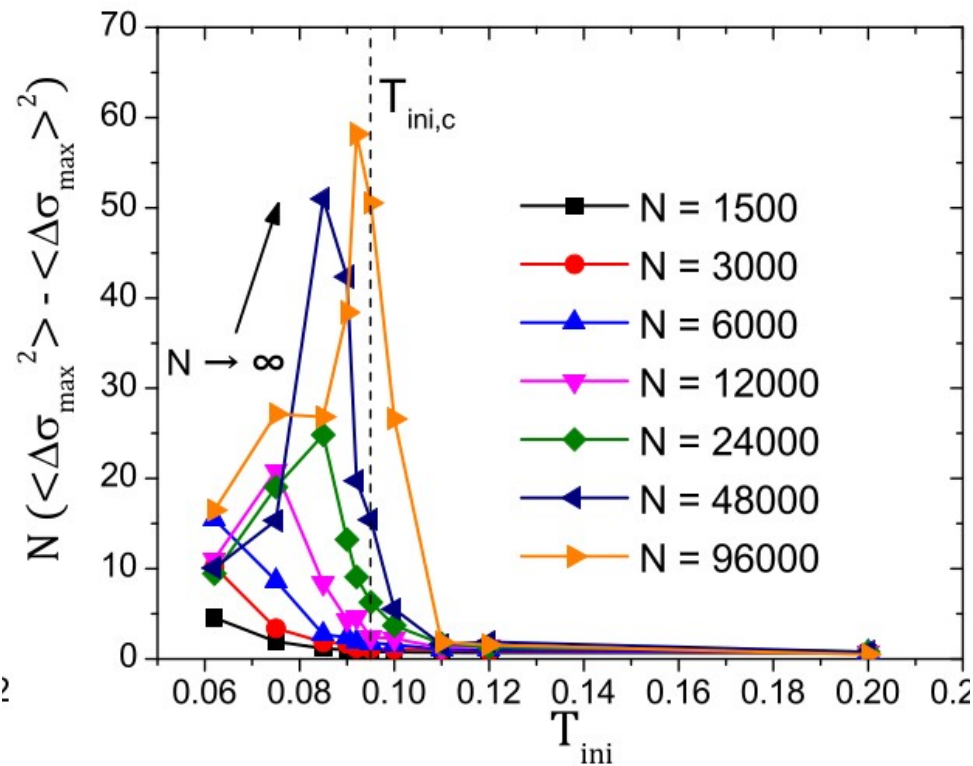
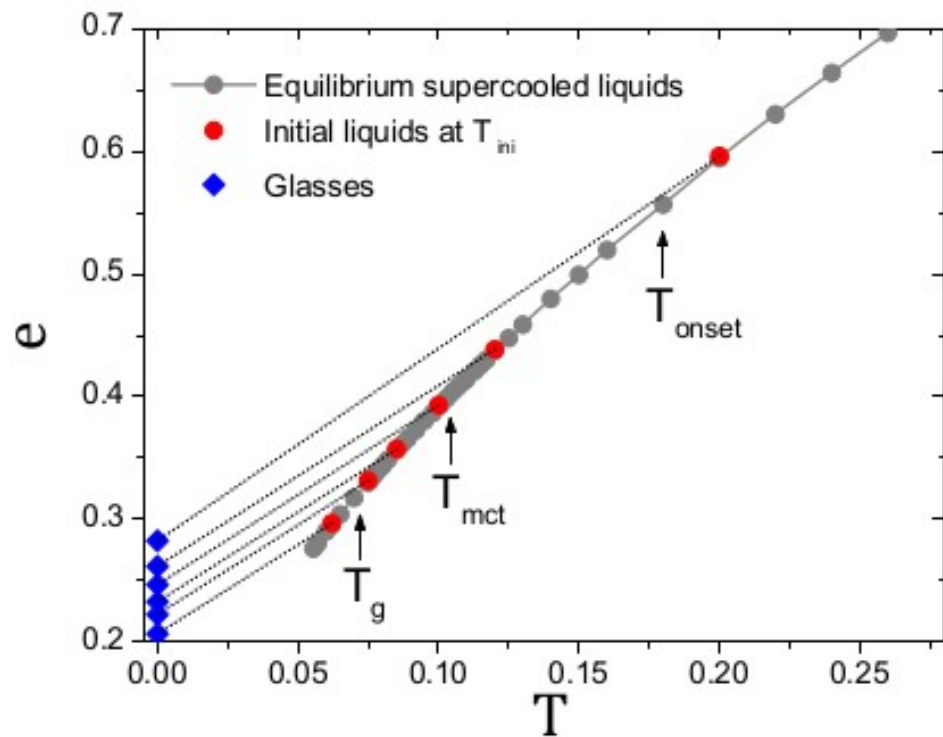
# Proportion of horizontal and vertical shear bands?

$\gamma = 150\text{e-}3$

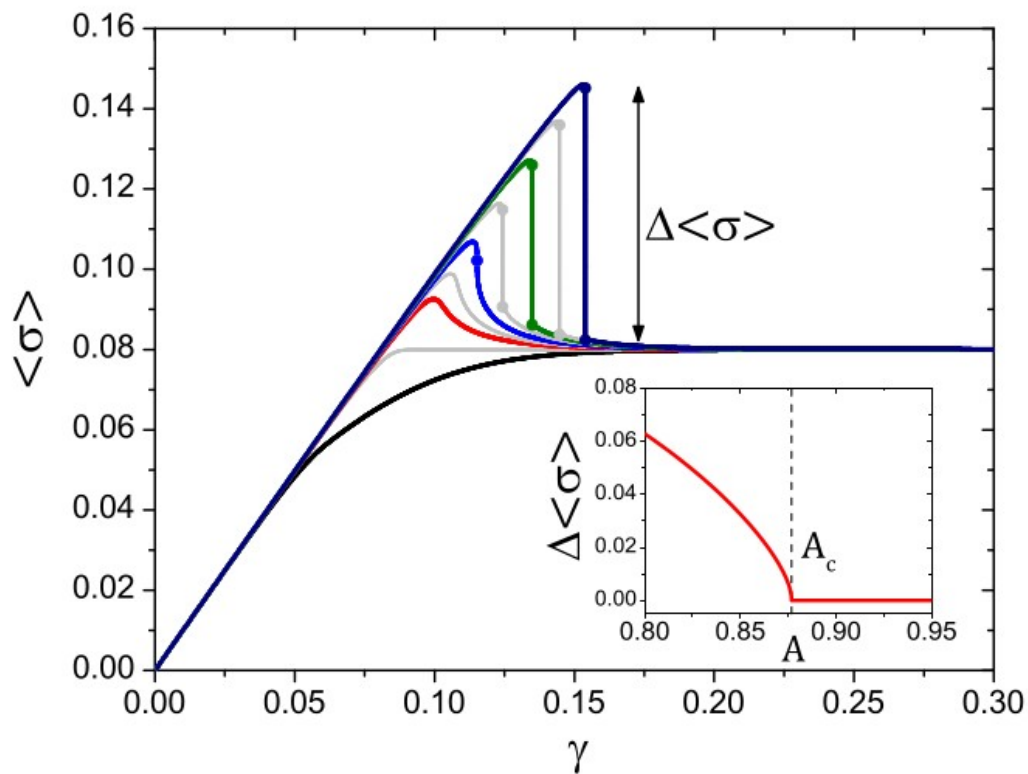
Non-affine displacement  
0 2



# Origin of the critical temperature?



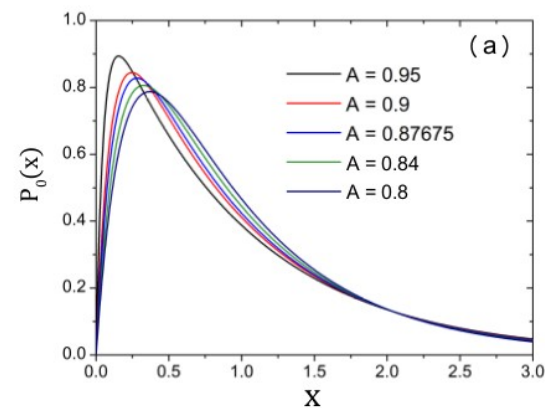
# Influence of the distribution?



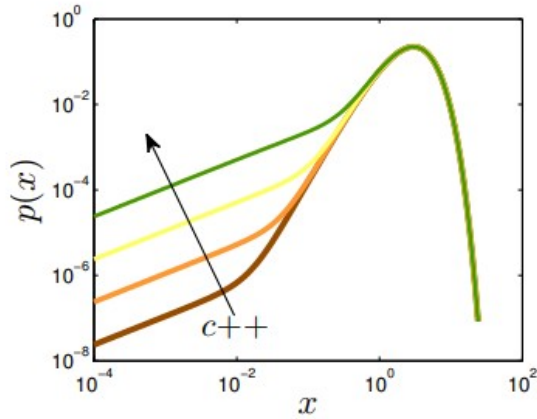
$$\frac{\partial P_\gamma(x)}{\partial \gamma} = \frac{2\mu_2}{1 - x_c P_\gamma(0)} \left[ \frac{\partial P_\gamma(x)}{\partial x} + P_\gamma(0)g(x) \right],$$

$$g(x) = \frac{1}{\bar{x}} e^{-x/\bar{x}}.$$

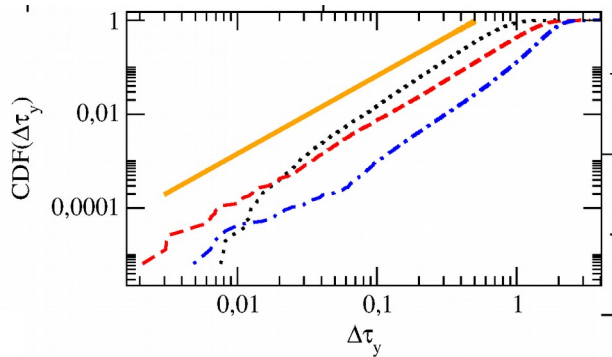
$$P_{\gamma=0}(x) = (e^{-x/A} - e^{-x/(1-A)}) / (2A - 1),$$



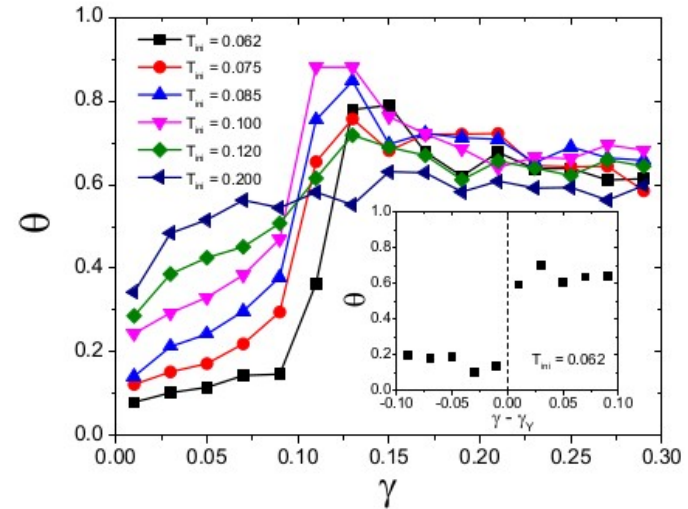
# Influence of the preparation protocol on the theta exponent?



E. Lerner et al. (2018)



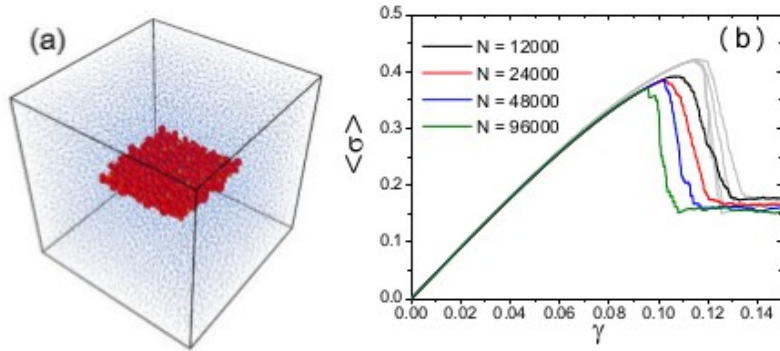
A. Barbot et al., PRE (2018)



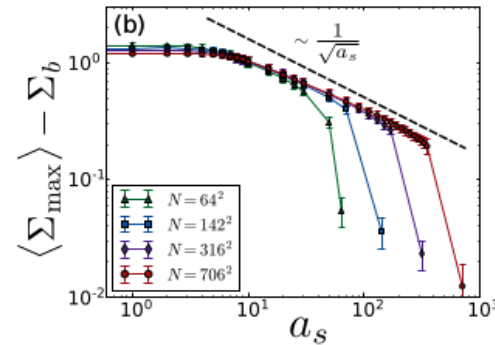
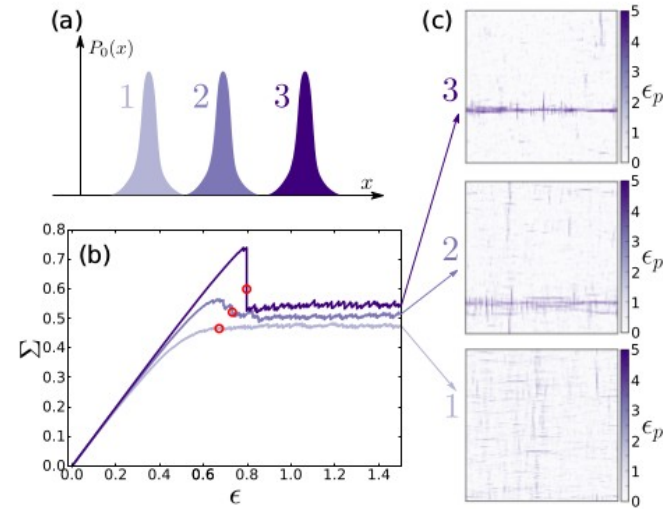
M. Ozawa et al., PNAS (2018)



# Precursor effect?



M. Ozawa et al., PNAS (2018)



M. Popović et al. PRE (2018)

$$a_c \sim \frac{1}{(\Sigma - \Sigma_b)^2}.$$