

SU update: Best estimate

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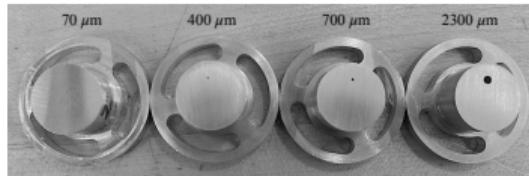
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- $\delta \approx 0.035[\text{m}]$, $U_e \approx 14[\text{m/s}]$

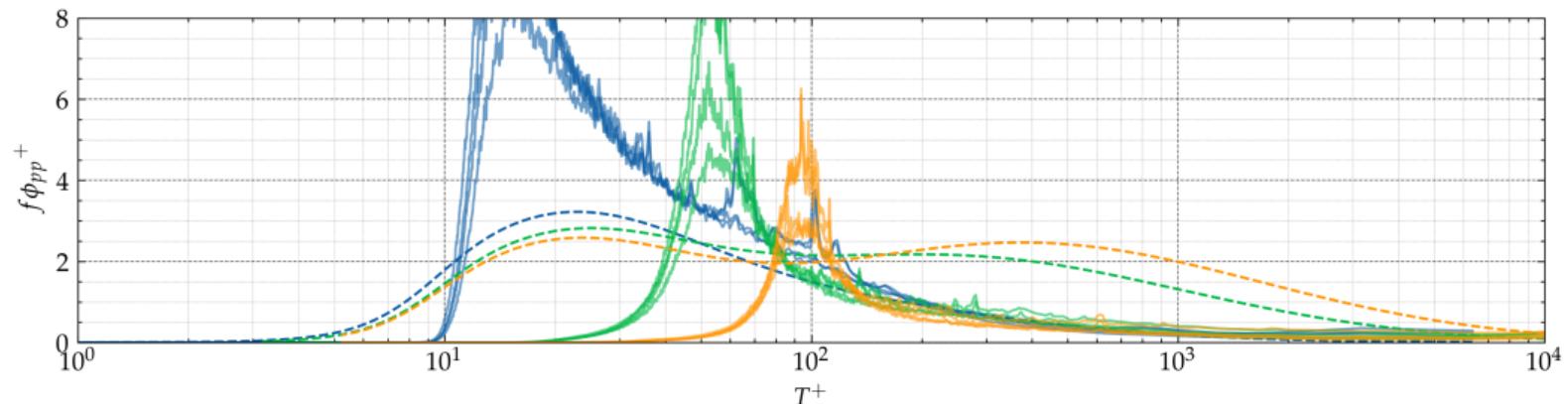
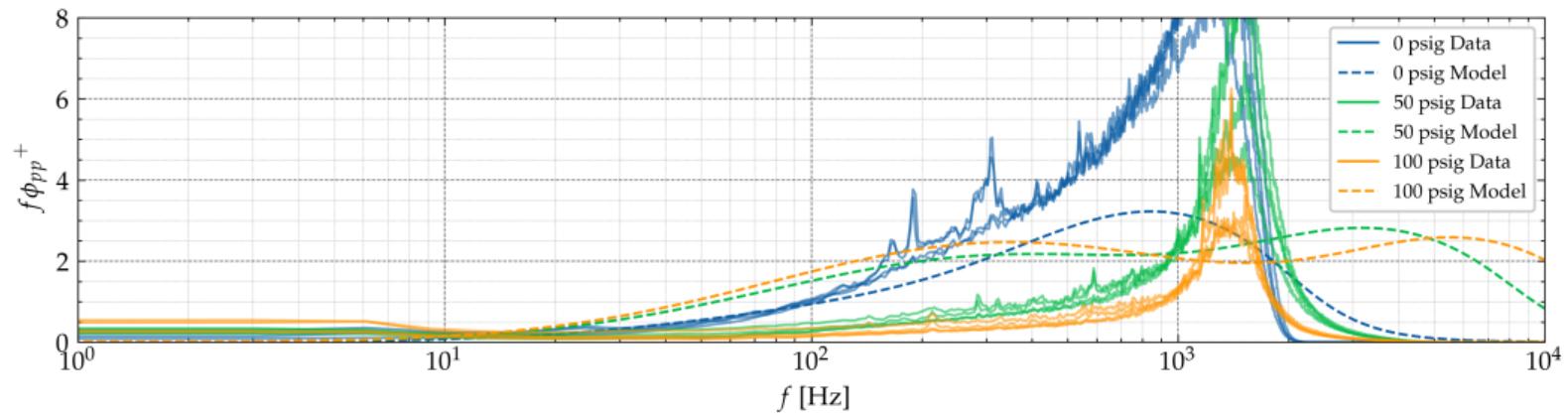
Pressure (psig)	0	50	100
$u_\tau [\text{m/s}]$	0.537	0.522	0.506
$\nu / u_\tau [\text{m}]$	28×10^{-6}	6.6×10^{-6}	3.8×10^{-6}
$\nu [\text{m}^2/\text{s}]$	14.9×10^{-6}	3.42×10^{-6}	1.93×10^{-6}
Re_τ	1 263	5 340	9 178
ROI: $f [\text{Hz}]$	100–1 000	100–1 000	100–1 000
ROI: T^+	200–20	800–80	1 300–130

Pinhole spacings

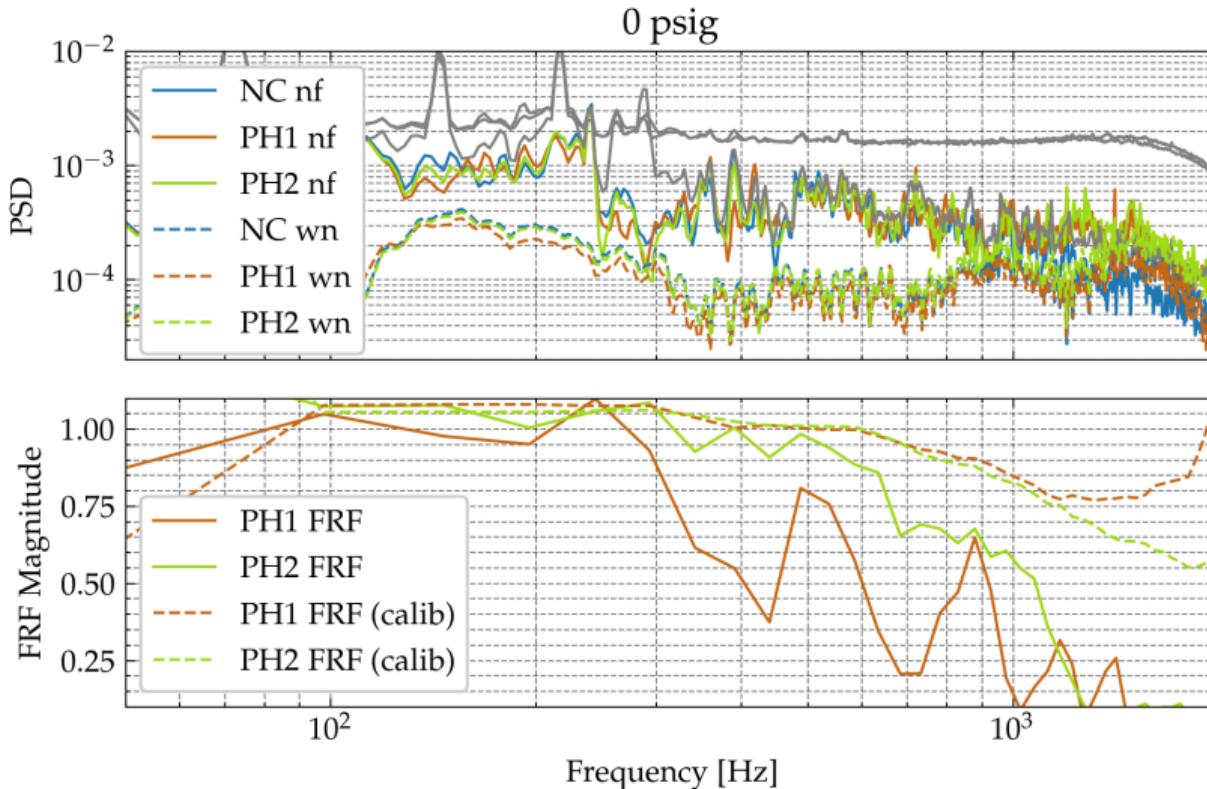


- ▶ We have two-point measurements at two streamwise spacings: 3.2δ and 2.8δ
- ▶ Herein, we refer to these as 'far' and 'close' spacings

FS noise rejected



Measurements look great, but the final result is very sensitive to the calibration



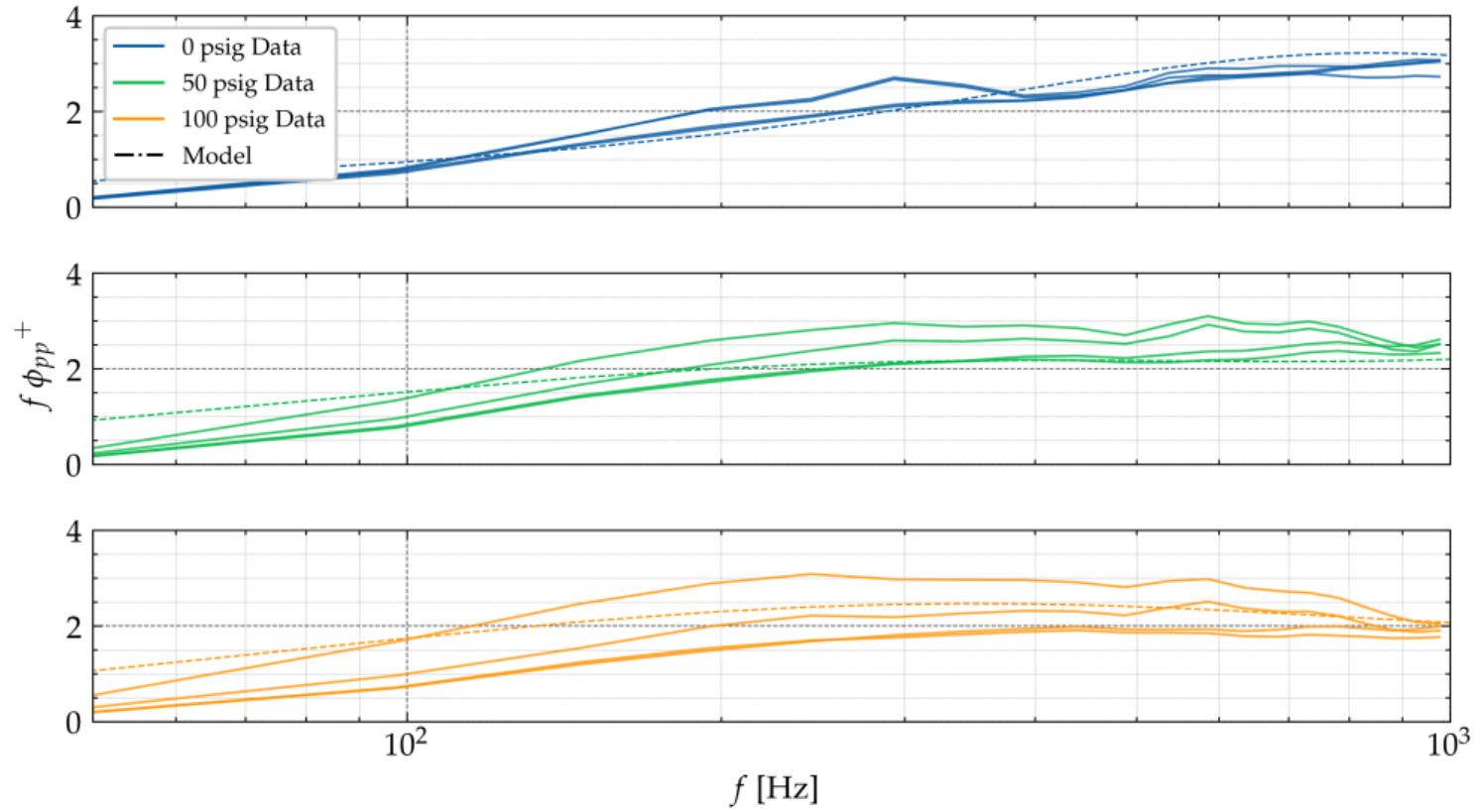
We use an LEM

$$|H_{\text{cal}}| = |H_{\text{wn}}| \times S \quad (1)$$

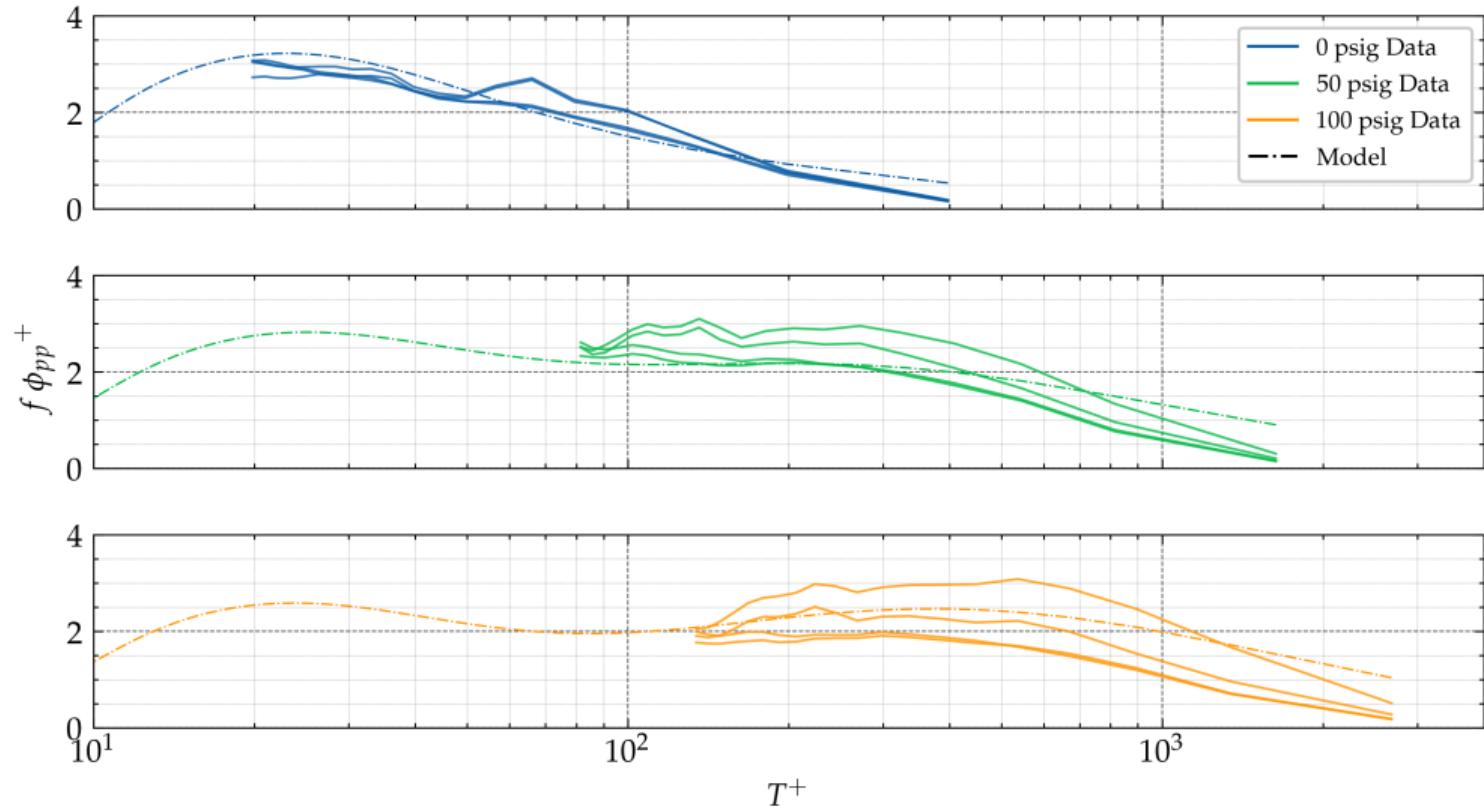
$$20 \log S = c_0 + a 20 \log f + b 20 \log \frac{\rho}{\rho_{\text{ref}}} + \frac{f}{f_{\text{ref}}} \quad (2)$$

- ▶ Mass scaling and compliance term
- ▶ Fit parameters a , b , c_0 , and f_{ref} to calibration data at each pressure
 - ▶ c_0 and b do the work

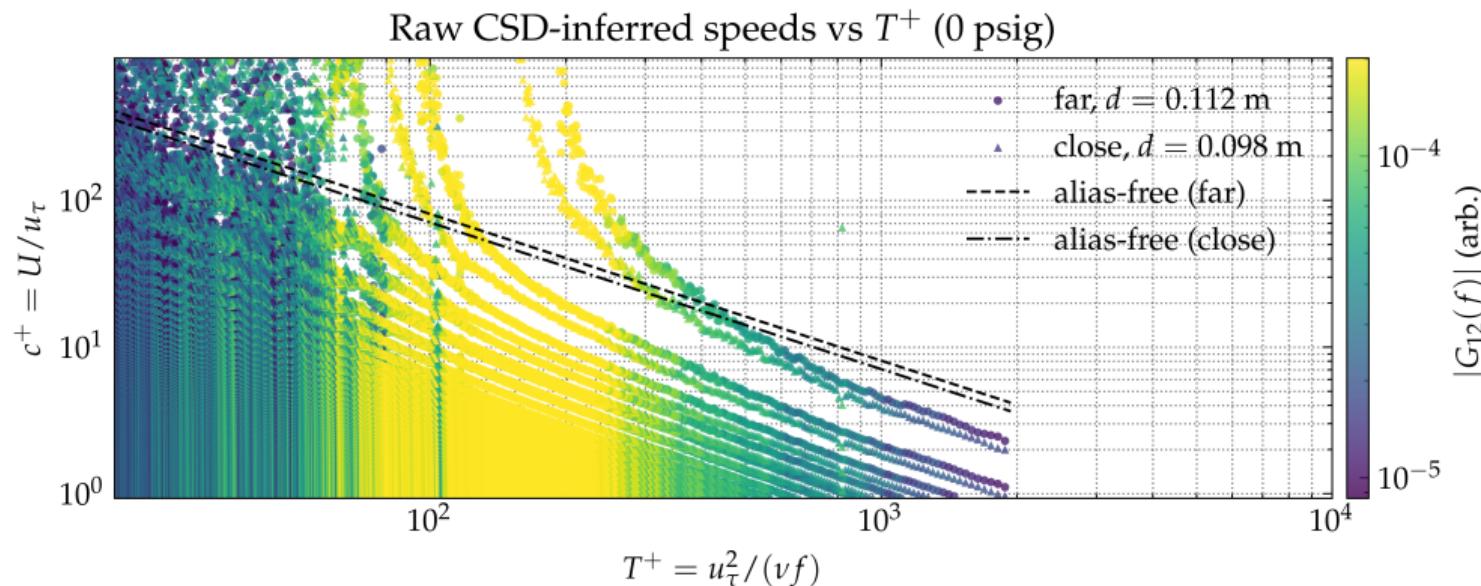
Final spectra in ROI



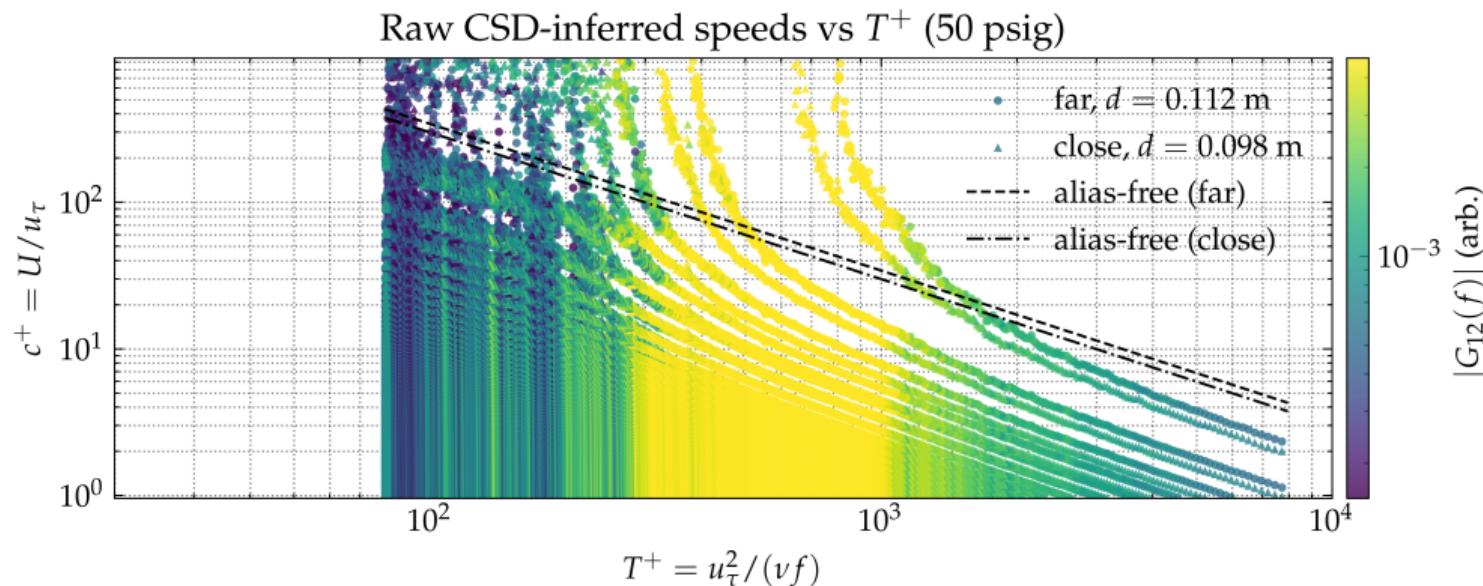
Final spectra in ROI



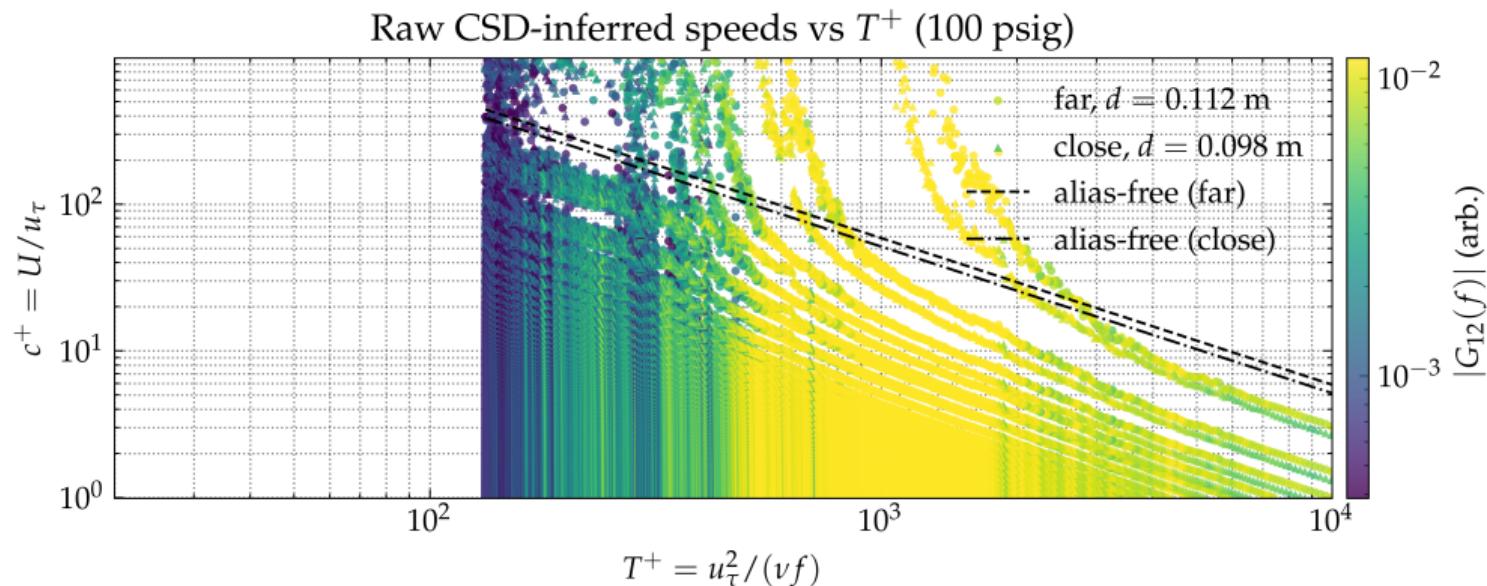
Speeds



Speeds



Speeds



Shear

