Pressure checks Wed. 09-01-2025

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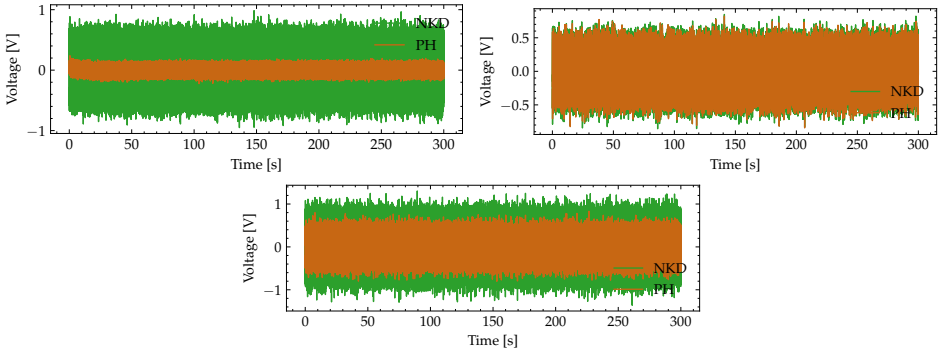
Raw calibration signals



Top left: white noise, **top right:** *only* facility noise, **bottom:** white noise + facility noise

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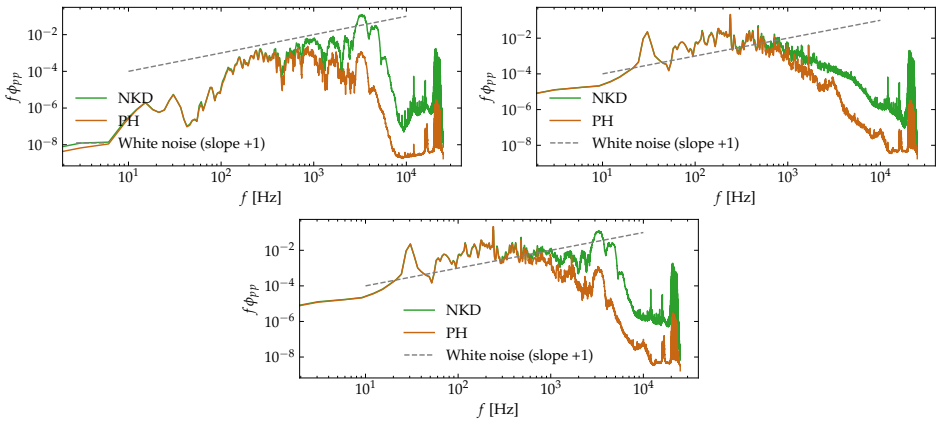
Raw calibration spectra: welch, $N_{\text{bin}} = 2^{14}$, $t_{\text{seg}} = 0.33\text{s}$



The PH doesn't suppress anything below $f = 500[\text{Hz}]$ ($T^{+} \approx 40$)

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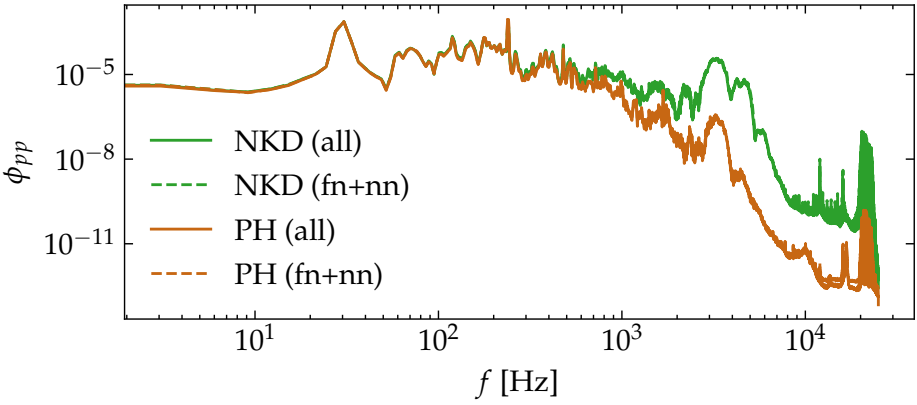
The calibration noise adds up



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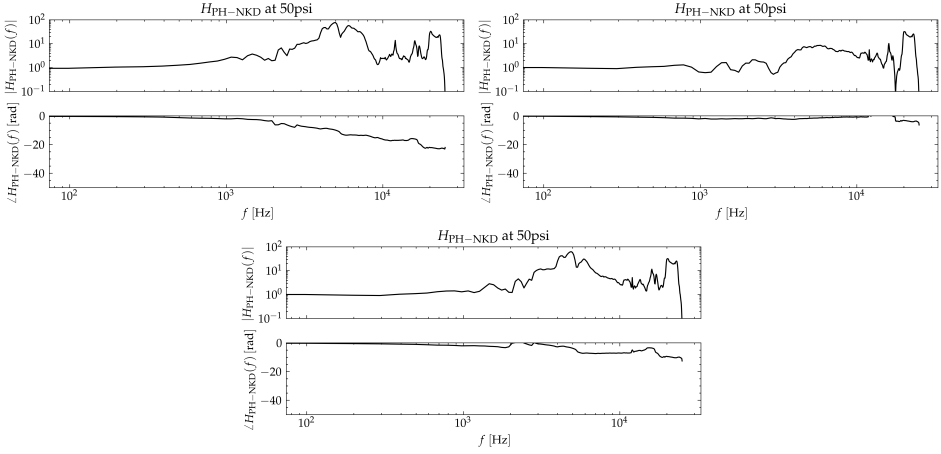
White noise is needed to highlight required TF



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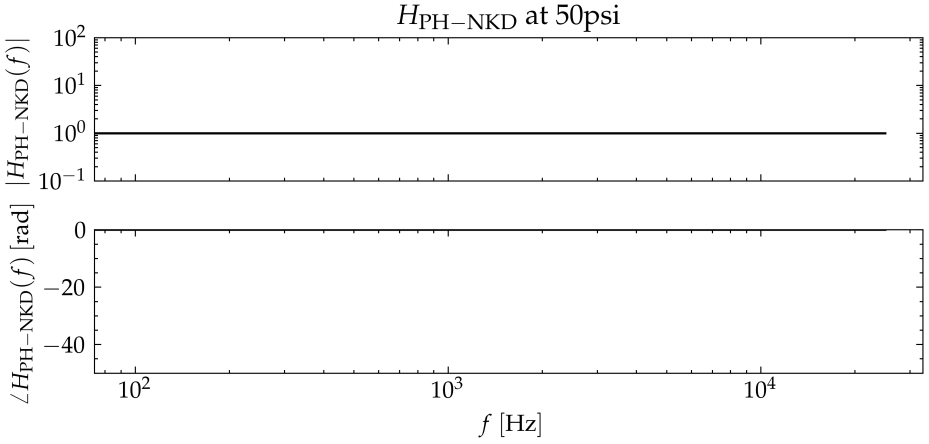
TF function between identical signals is 1



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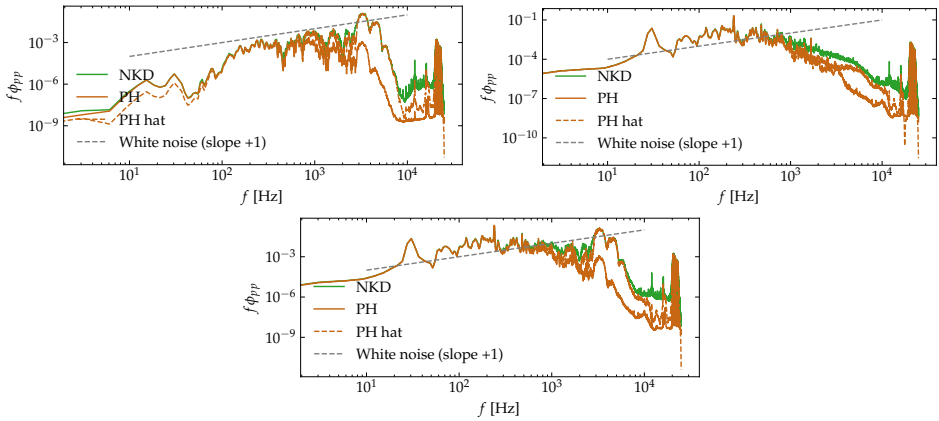
TF reconstructed spectra



There seems to be some low-end oddities in application of the TF. This could be due to the low-frequency resolution, try a HP&LP filter.

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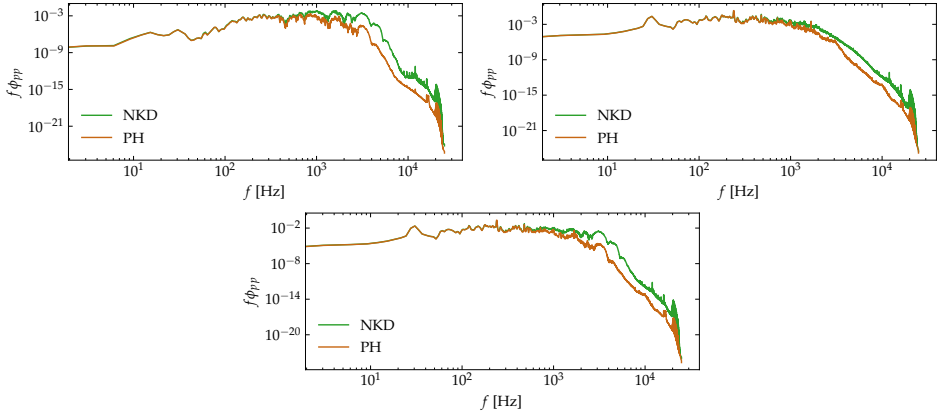
Spectra w. HP & LP filter

Filter at 0.1Hz and 2kHz corresponding to LP cutoff of $T^+ = 10$ at 50psi



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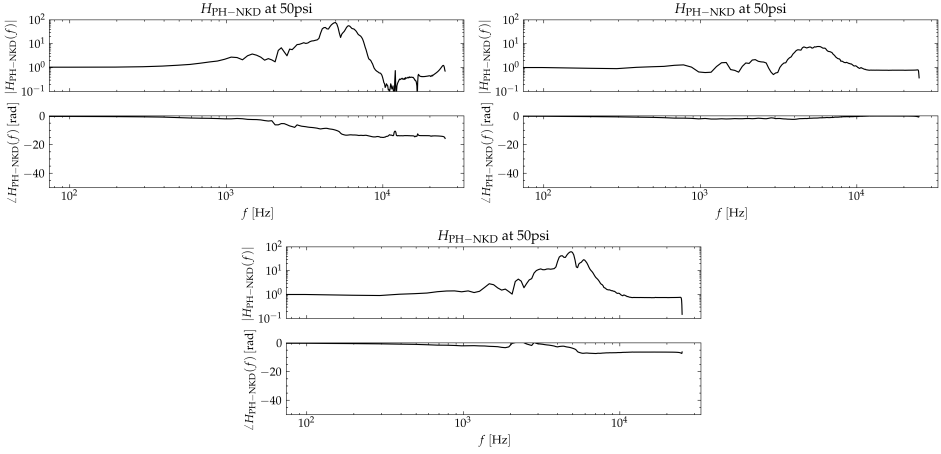
Do the TFs look reasonably similar after filtering?



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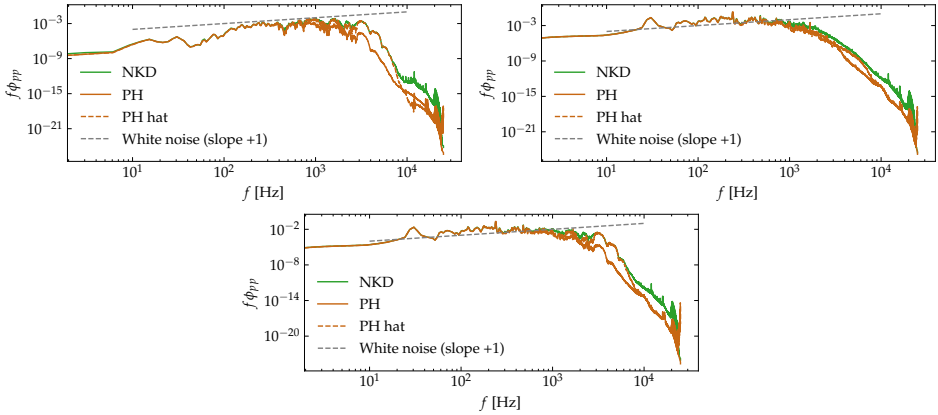
TF reconstructed spectra with HP & LP filter



There's no benefit of filtering the signals before calculating the TF

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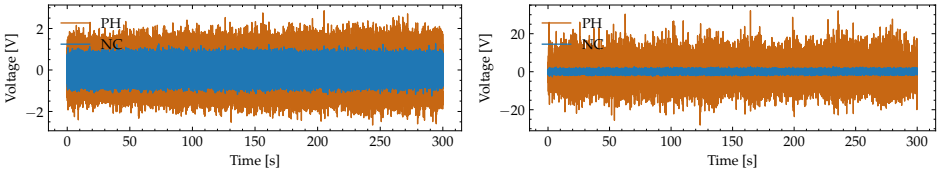
In-situ measurements at 50psi



Left: facility noise (no flow), **right:** flow on measurements.

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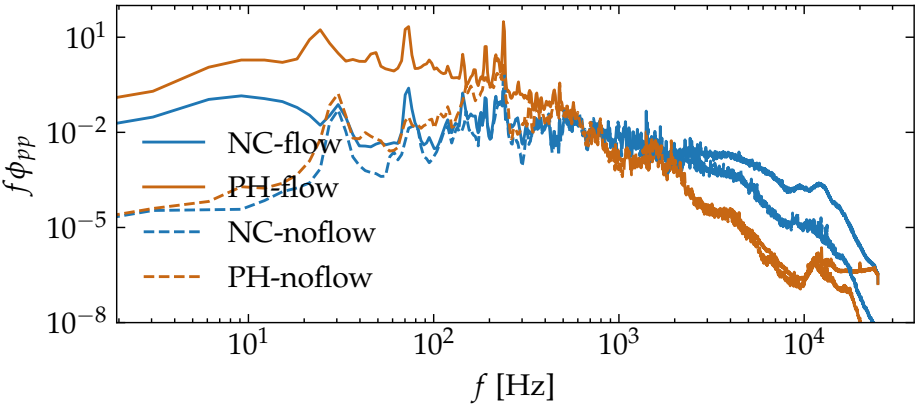
In-situ spectra at 50psi



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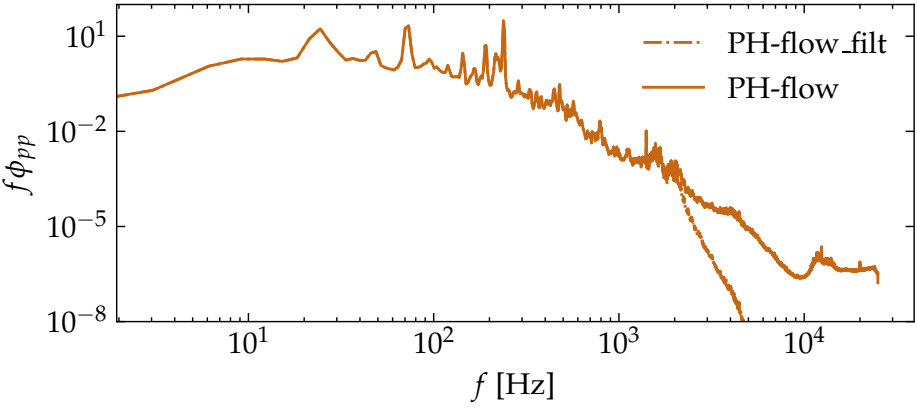
In-situ spectra at 50psi, filtered at 0.1Hz and 2kHz



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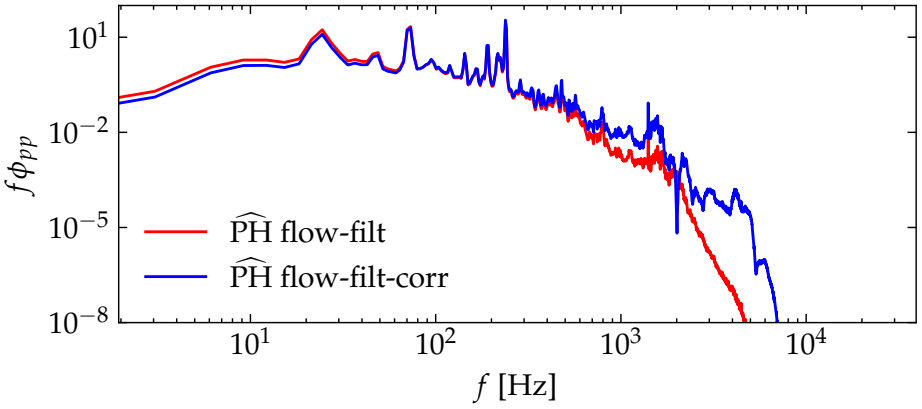
In-situ spectra at 50psi, filtered at 0.1Hz and 2kHz, corrected by TF



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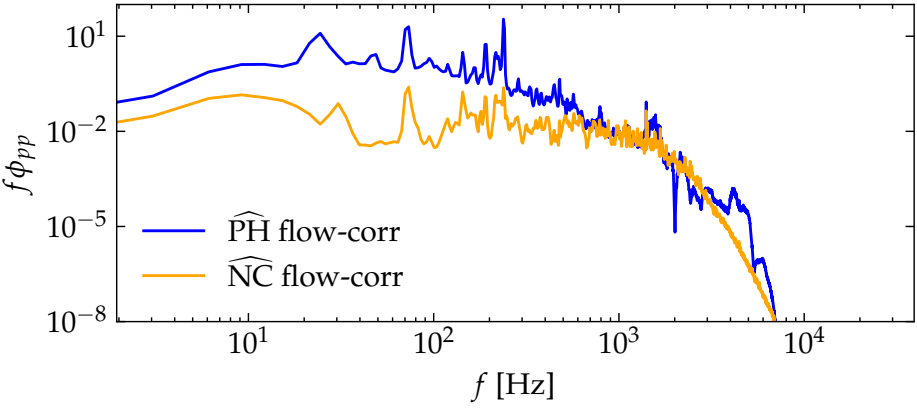
Compare this corrected PH to the NC



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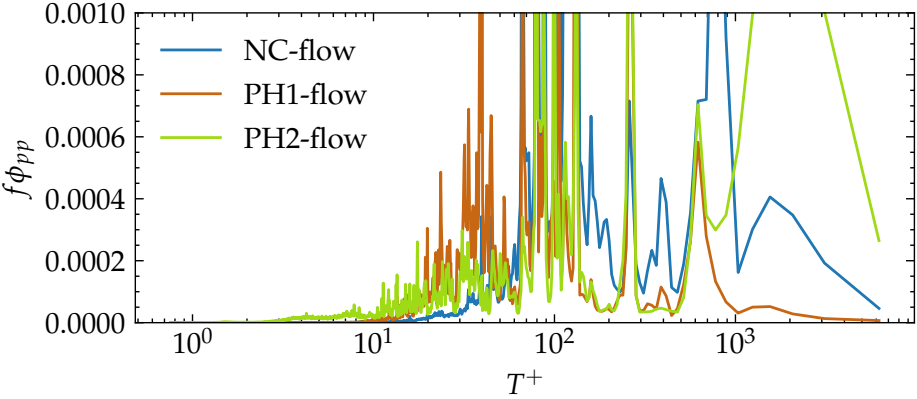
We're getting somewhere, we have new data though



This looks better, but the sticking point is the noise rejection. I'll work on that next.

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