

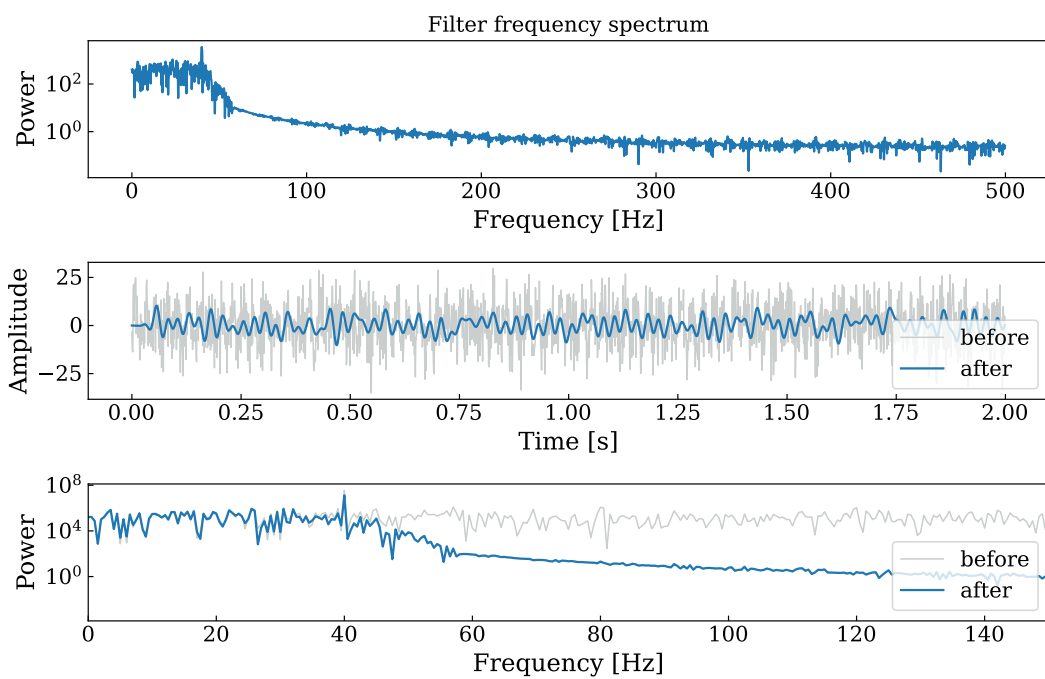
SATFD lab 04

Dawid Karpiński, 25.04.2024 r.

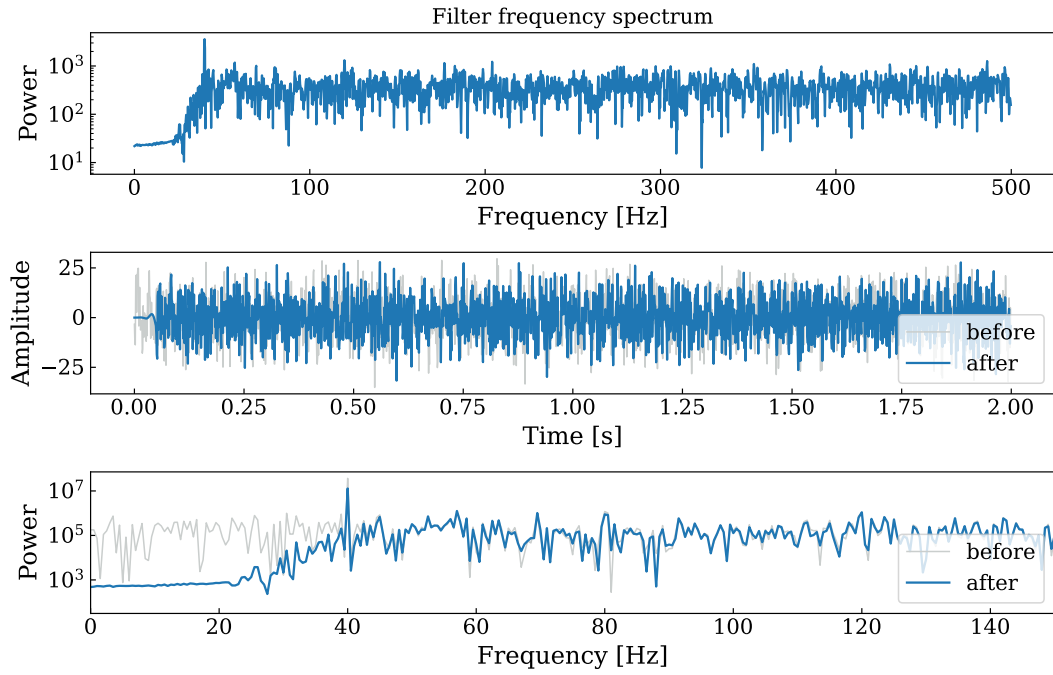
1 Noisy sine signal

1.1 FIR filters

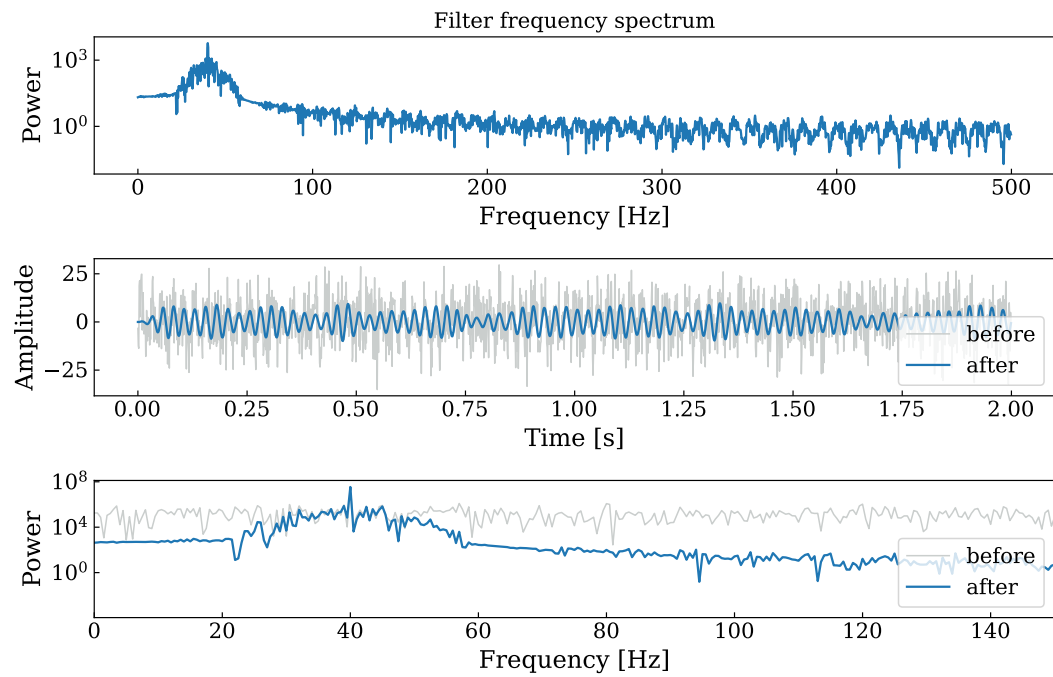
highpass filter, SNR=1.655 [dB]



lowpass filter, SNR=1.139 [dB]

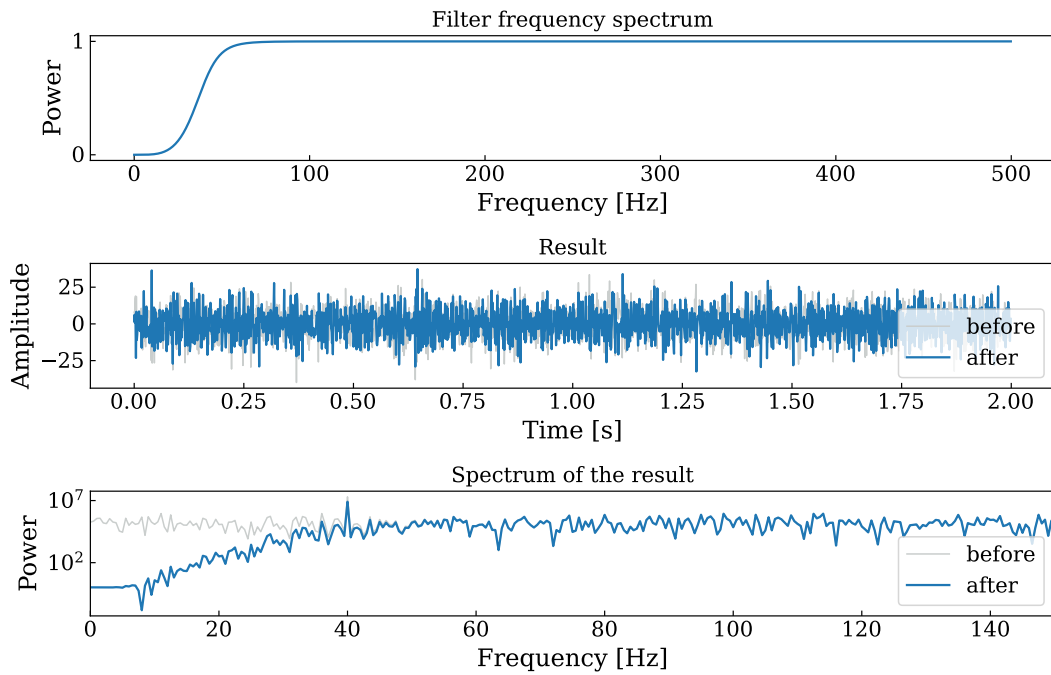


bandpass filter, SNR=2.366 [dB]

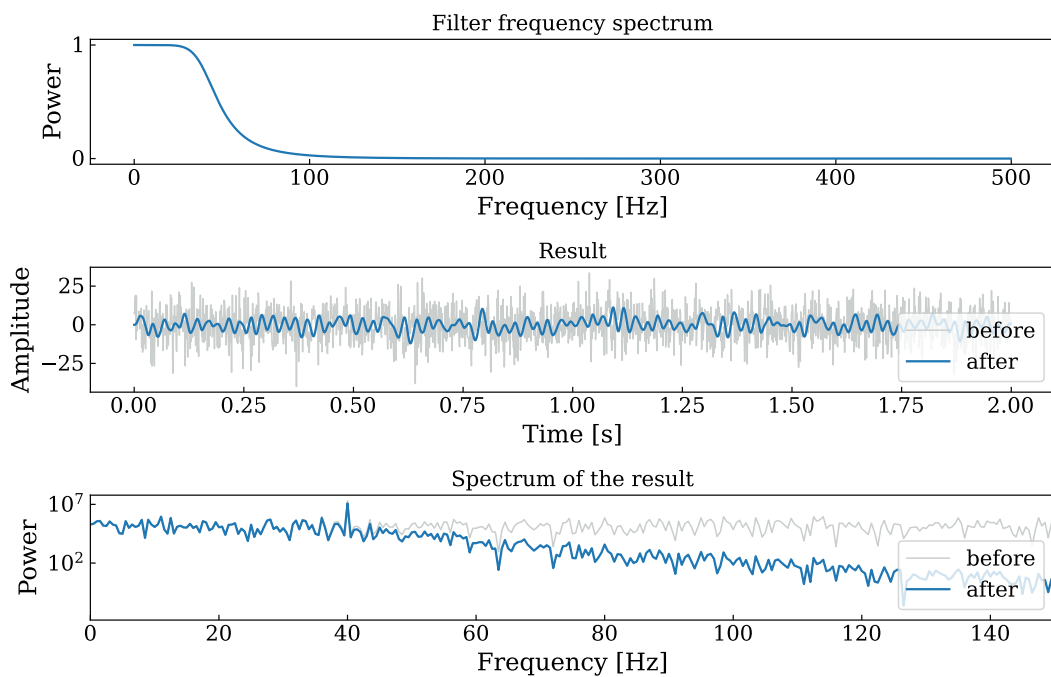


1.2 IIR filters

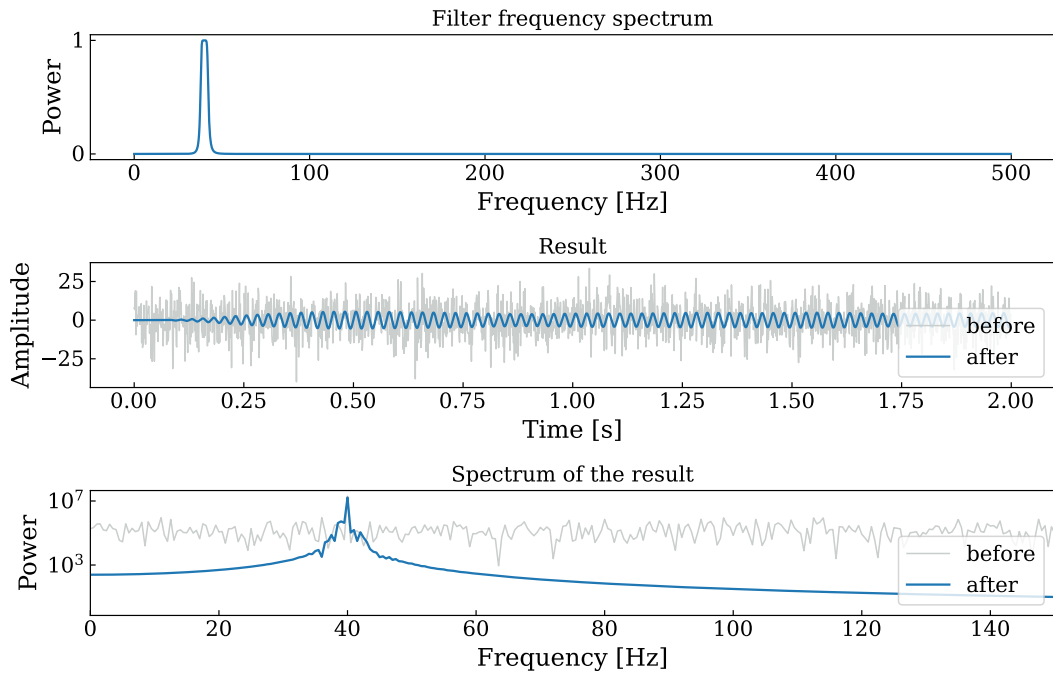
highpass filter, SNR=1.060 [dB]



lowpass filter, SNR=1.195 [dB]



bandpass filter, SNR=2.222 [dB]



2 Two sine waves

Figure 1: **Sum of two sine waves**

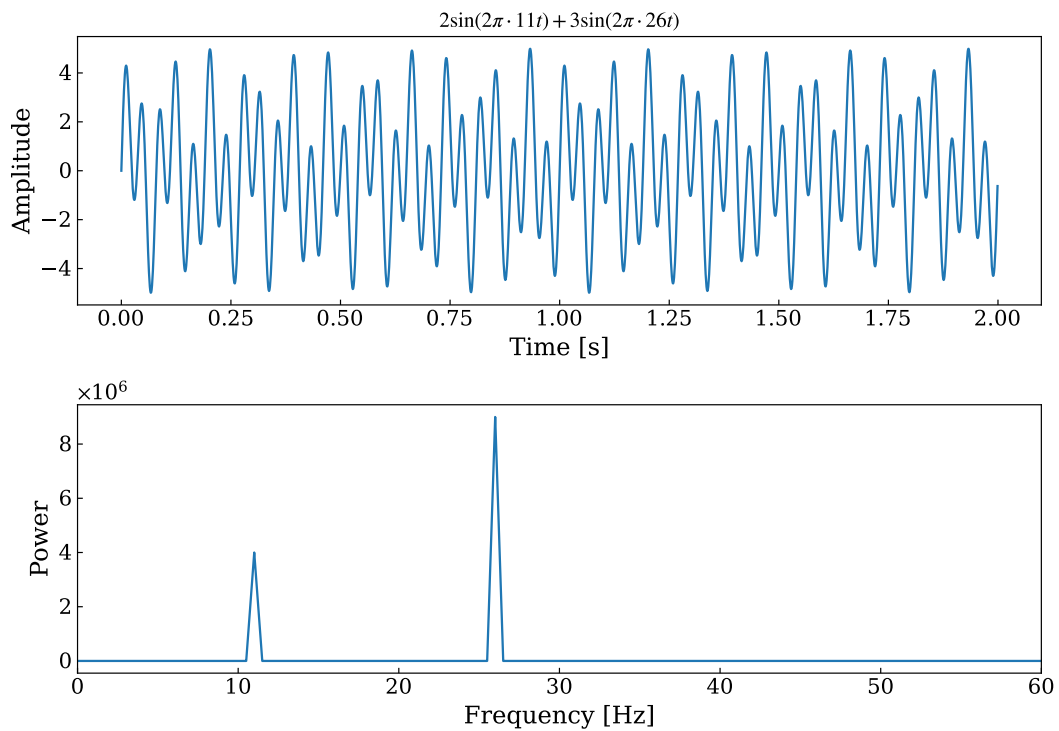


Figure 2: **Result after highpass filter of two sines**
highpass filter, SNR=3.107 [dB]

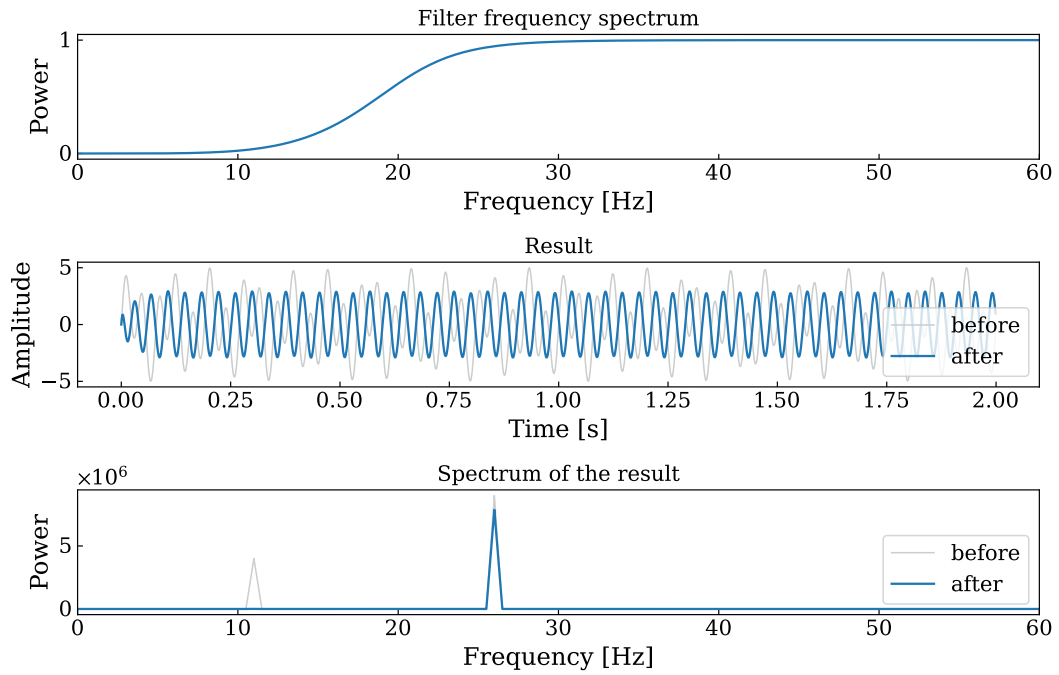
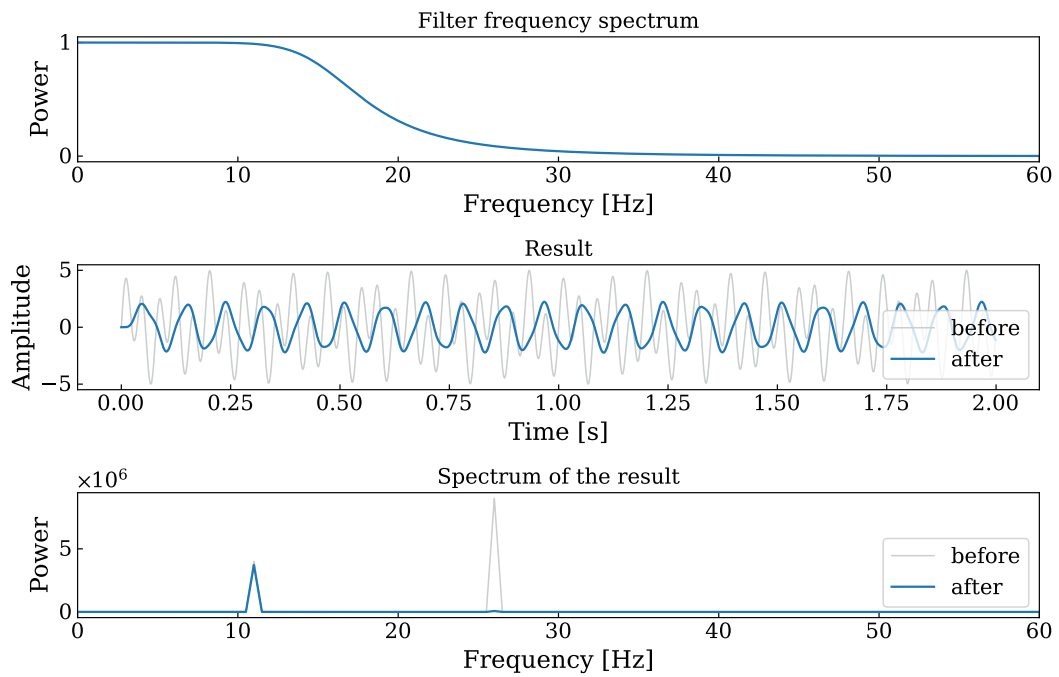
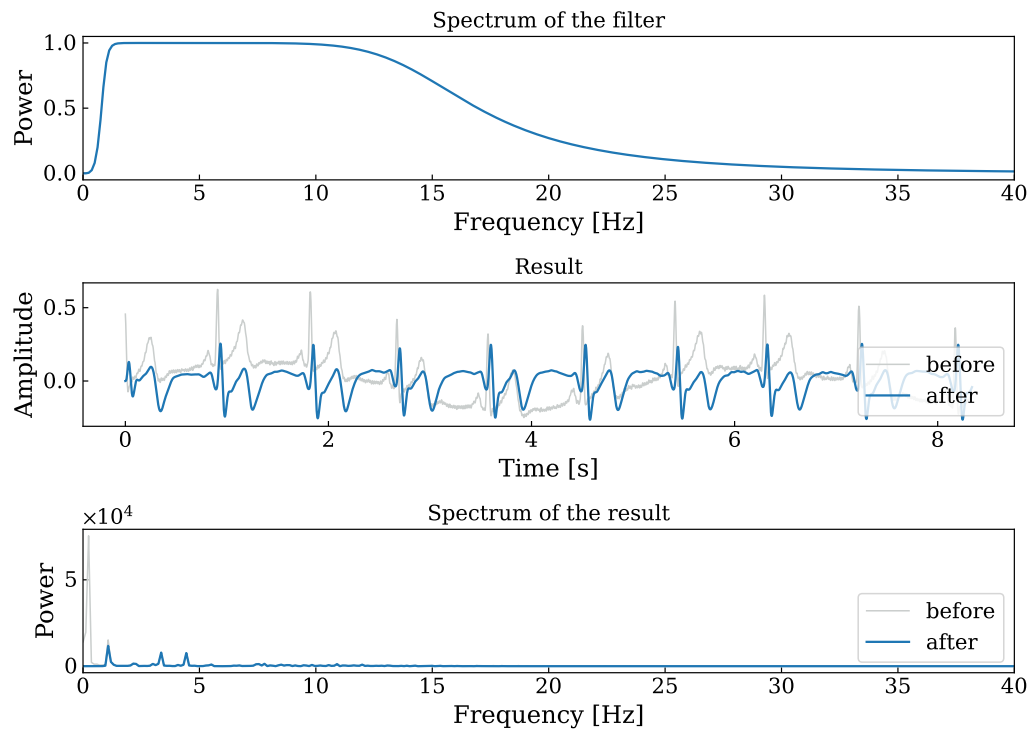


Figure 3: **Result after lowpass filter of two sines**
lowpass filter, SNR=2.915 [dB]



3 Noisy ECG signal

Figure 4: ECG before and after applying the filter



4 Conclusion

The entire code for generating the data and plots can be found at:

<https://github.com/davkk/signal-analysis/tree/main/sat/lab04>