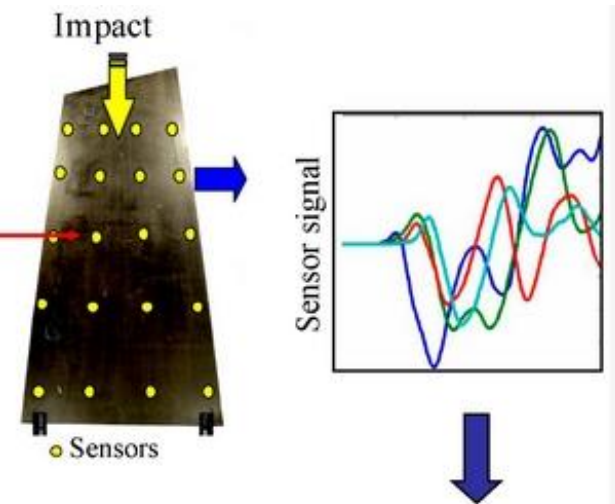
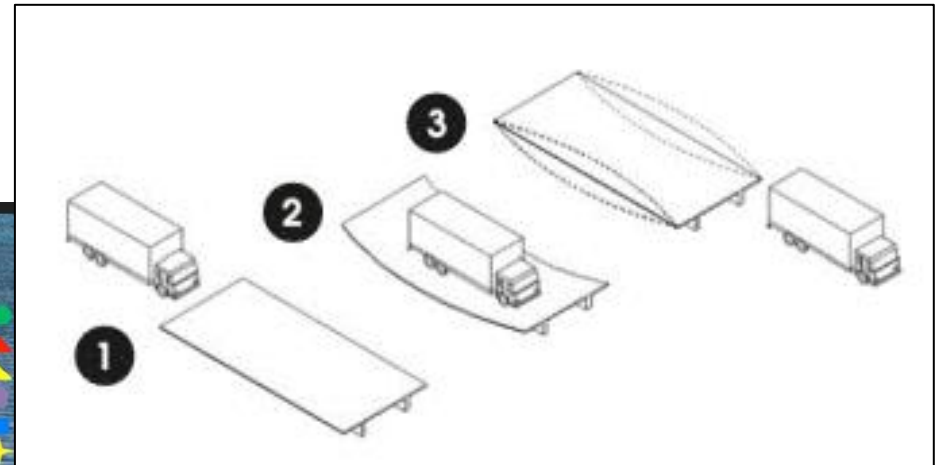
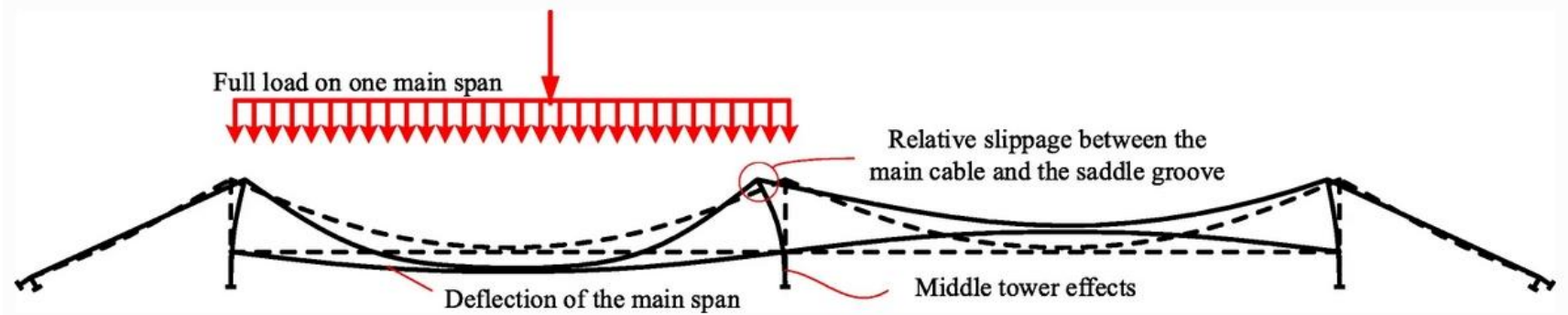


Transmissibilities



Transmissibilities



Transmissibilities

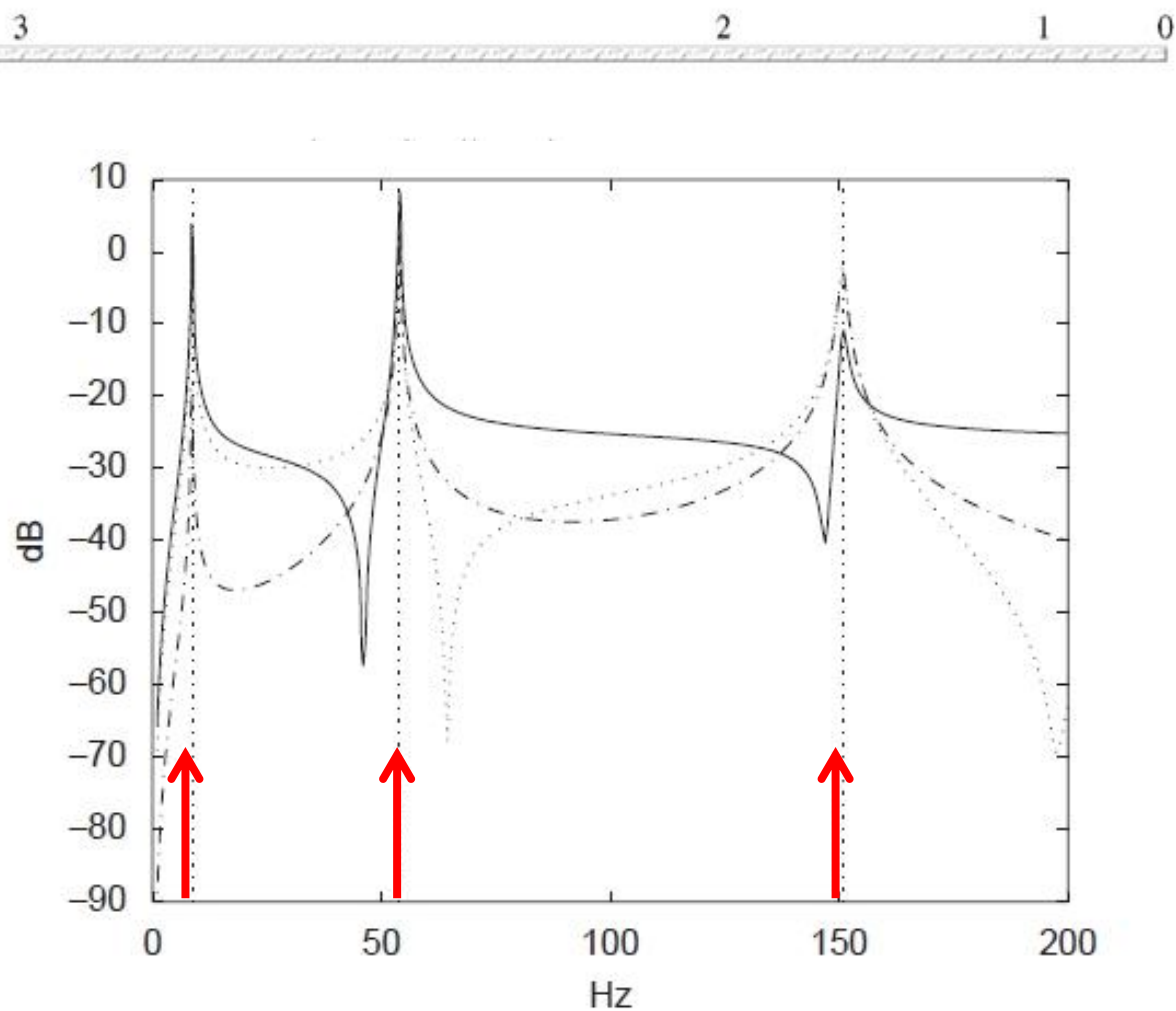


Fig. 4. Frequency response data H_{11} — H_{21} \cdots H_{31} - \cdot - \cdot .

Transmissibilities

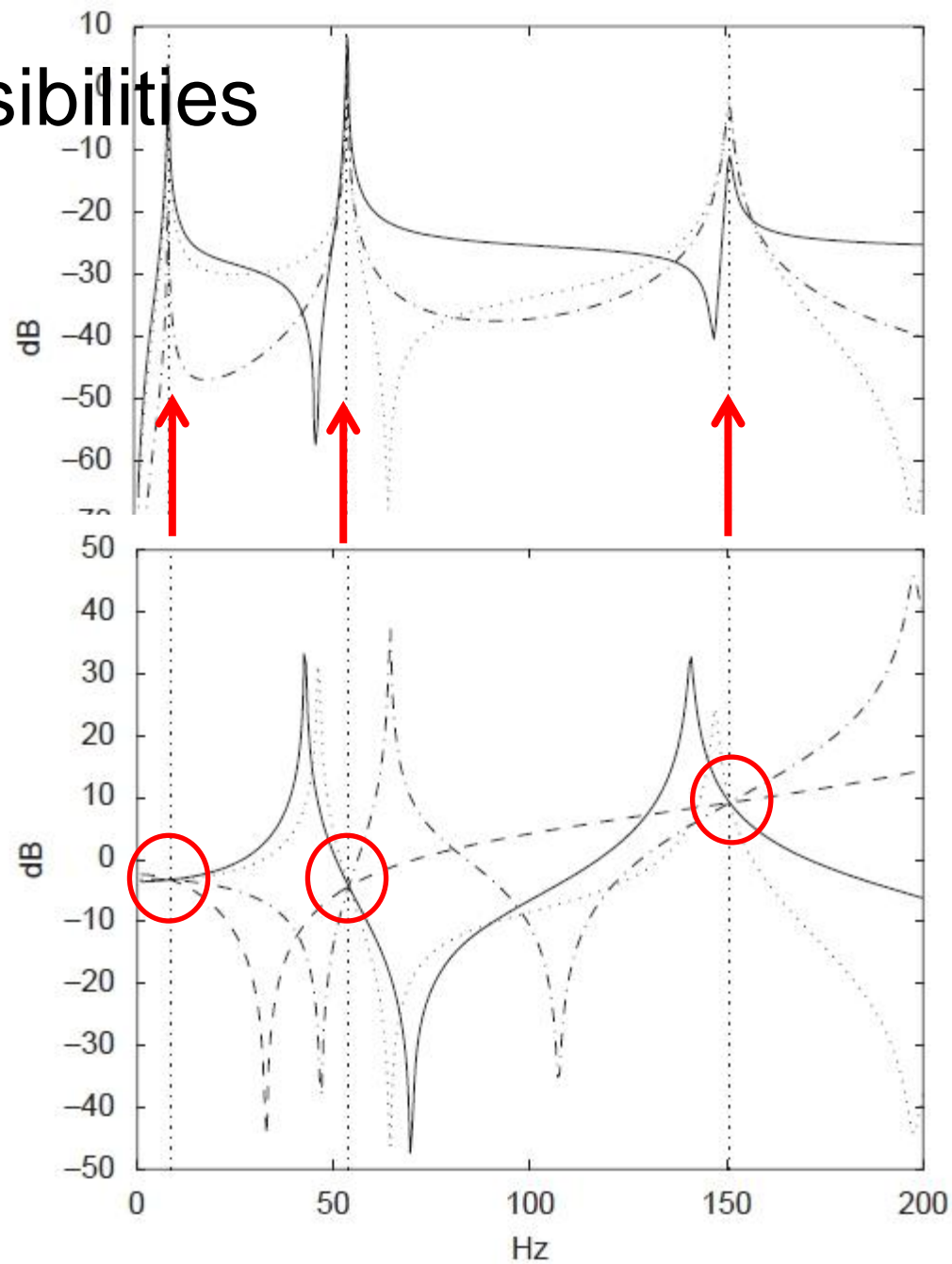


Fig. 5. Transmissibilities T_{21}^0 — T_{21}^1 ... T_{21}^2 - - - T_{21}^3 - - -.

Transmissibilities

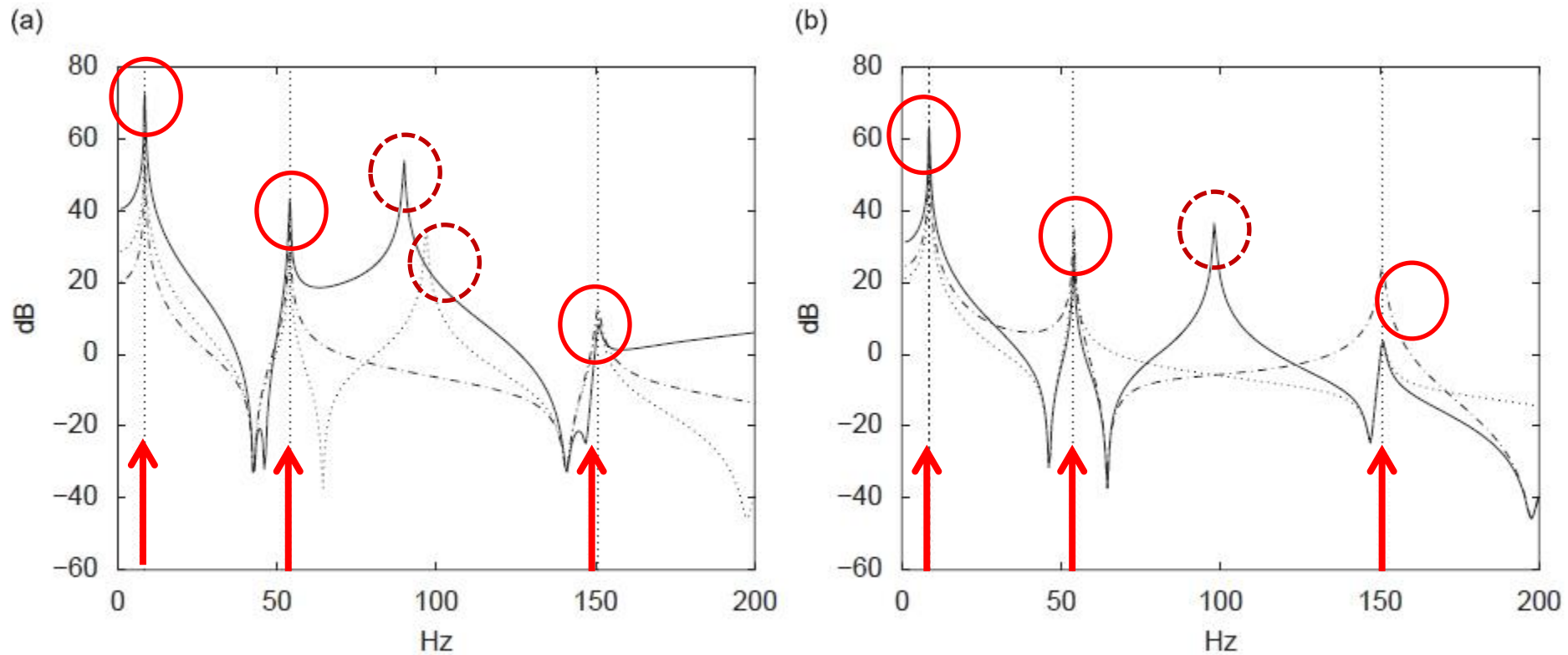


Fig. 6. (a) $\Delta^{-1}T_{21}^{01}$ — $\Delta^{-1}T_{21}^{02}$... $\Delta^{-1}T_{21}^{03}$ —... (b) $\Delta^{-1}T_{21}^{12}$ — $\Delta^{-1}T_{21}^{13}$... $\Delta^{-1}T_{21}^{23}$ —...

Transmissibilities

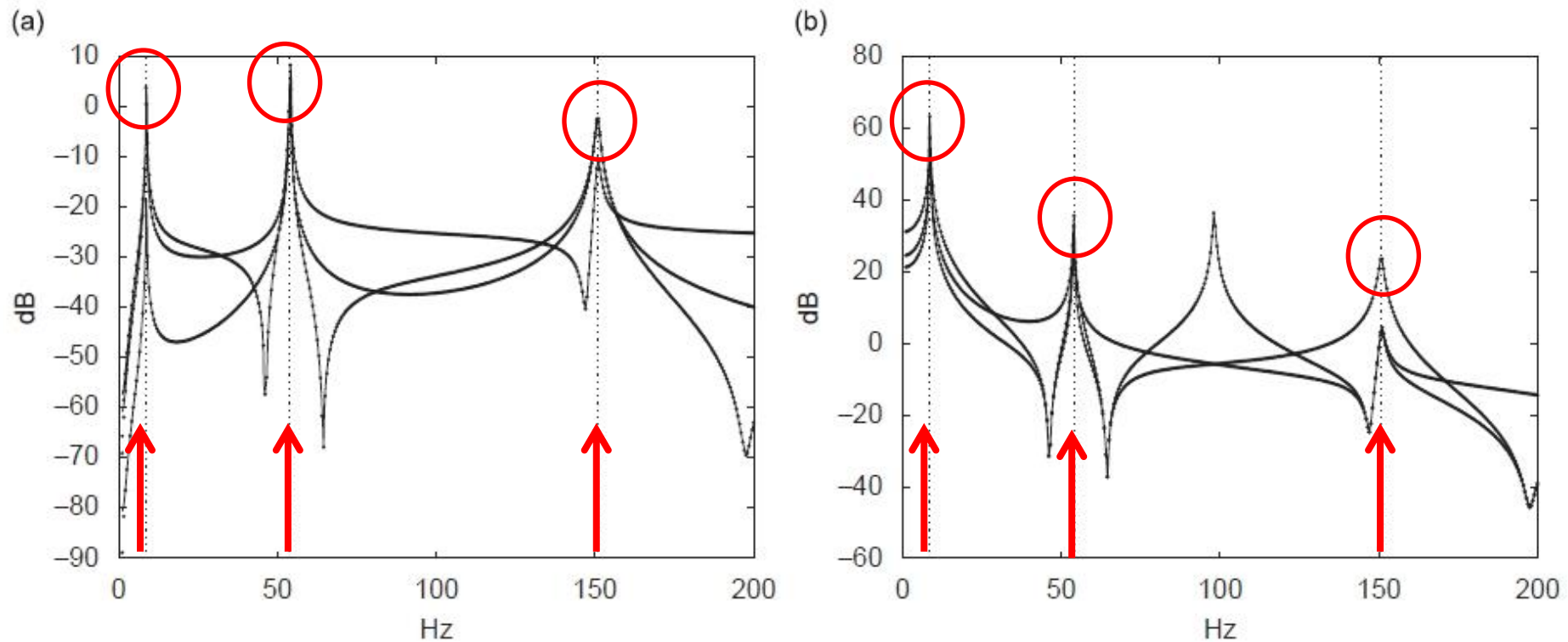


Fig. 7. Comparison between the estimated model (full line) and the measured spectra (dots) of (a) the FRFs and (b) the $\Delta^{-1}T_{ij}^{kl}$ functions.

Transmissibilities

Table 1
Comparison of the estimated damping ratios and damped natural frequencies obtained from the FRF measurements and the transmissibility-based approach

$\zeta(H)(\%)$	$\zeta(\Delta^{-1}T)(\%)$	$f_d(H)$ (Hz)	$f_d(\Delta^{-1}T)$ (Hz)
0.027	0.027	8.602	8.602
0.169	0.169	53.88	53.88
—	0.308	—	98.11
0.474	0.474	150.8	150.8

Transmissibilities

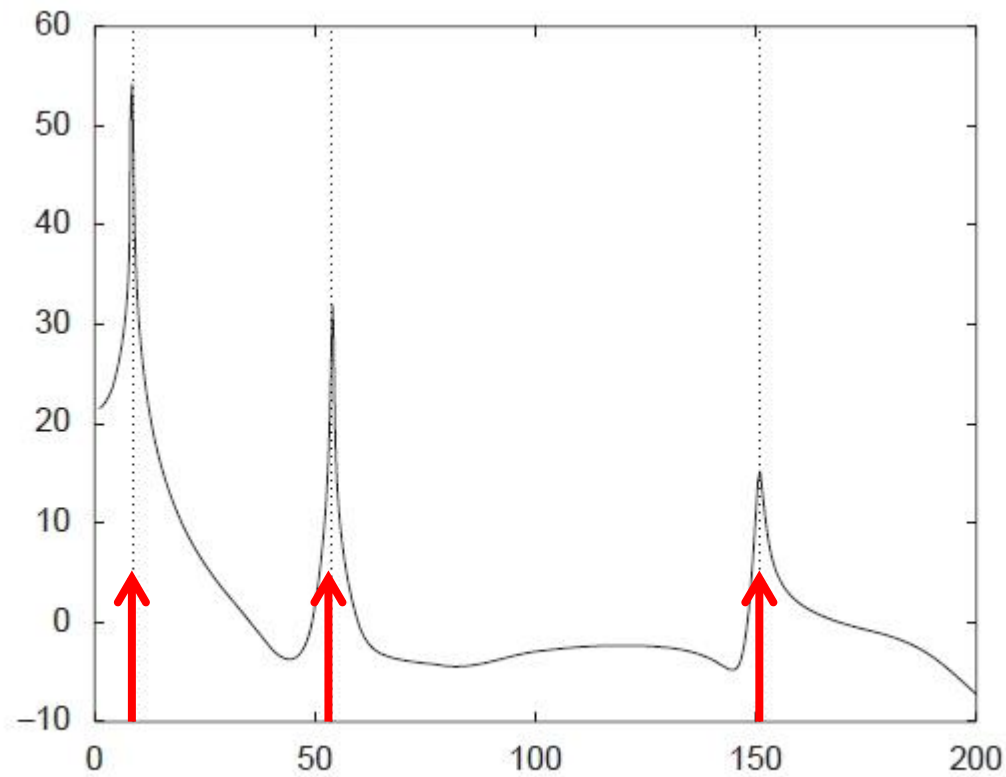
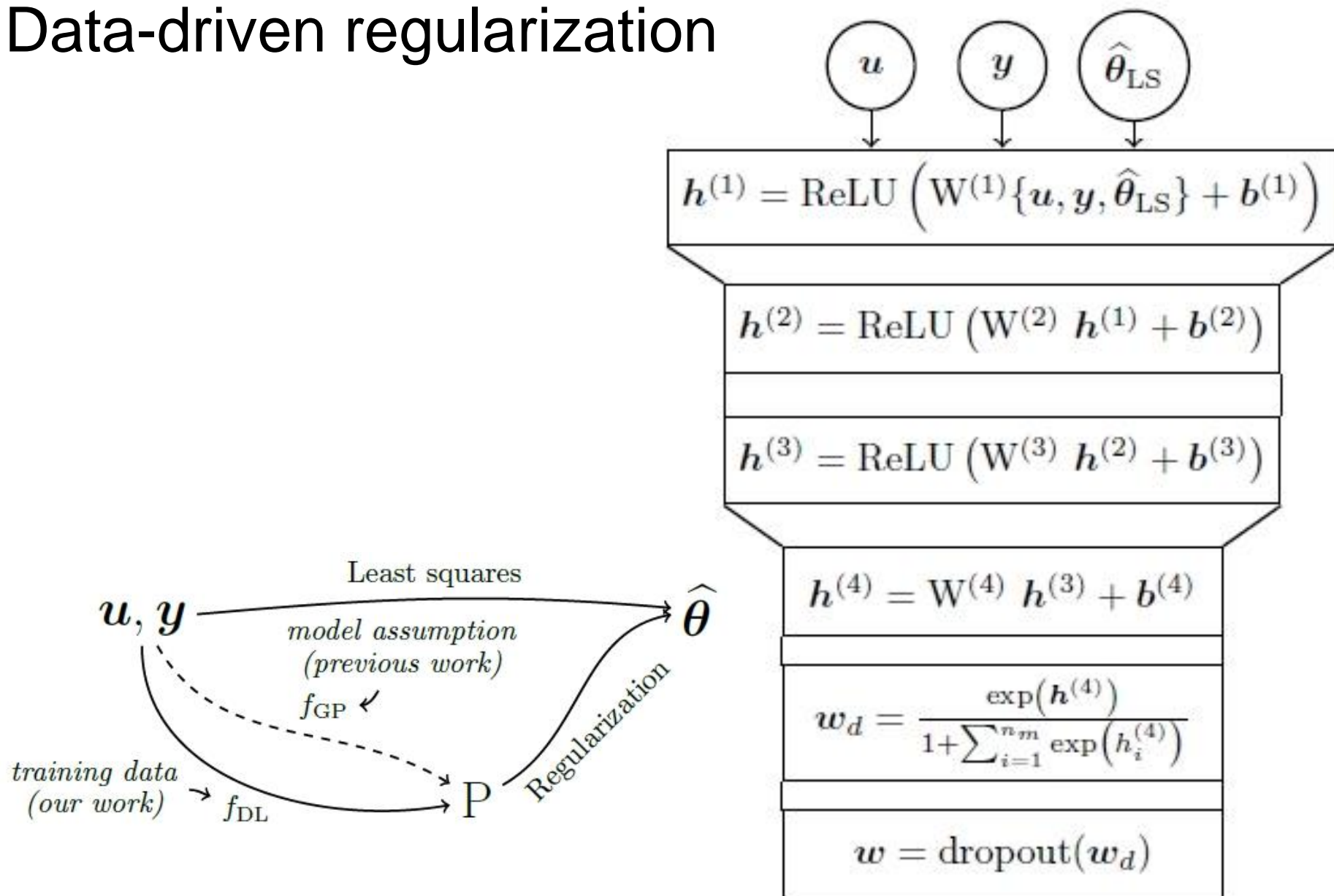


Fig. 8. Selection of the system's poles by means of a singular value decomposition $1/\sigma_2(\omega)$ —.

Data-driven regularization



Data-driven regularization

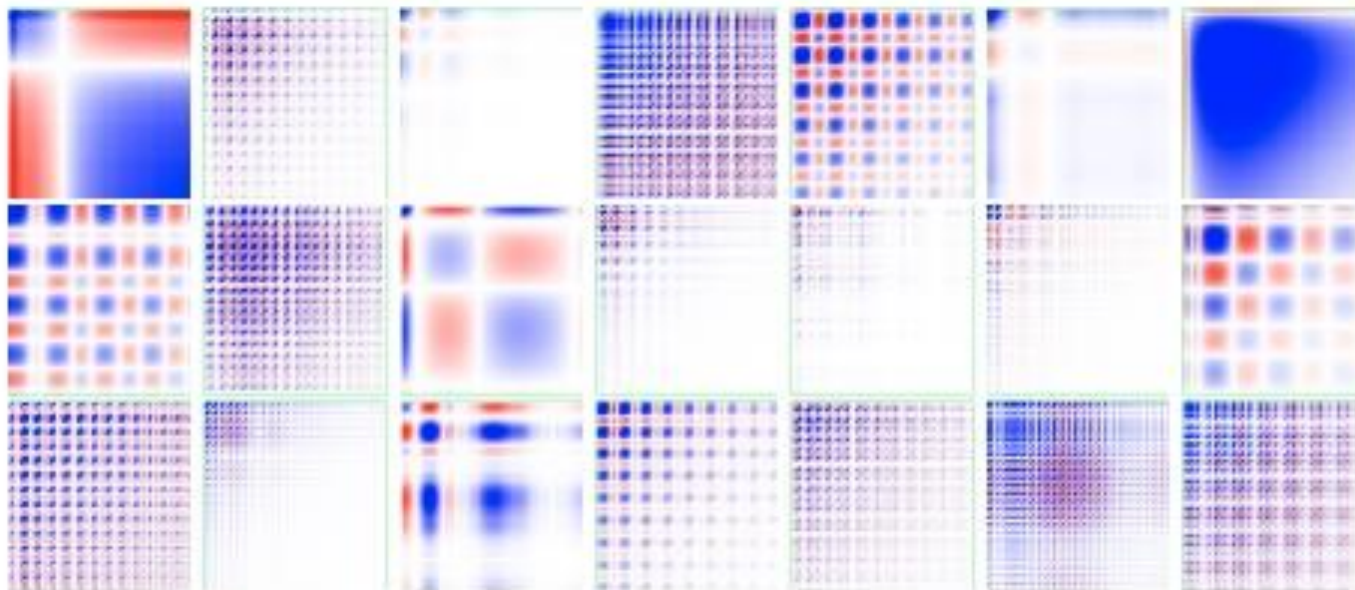
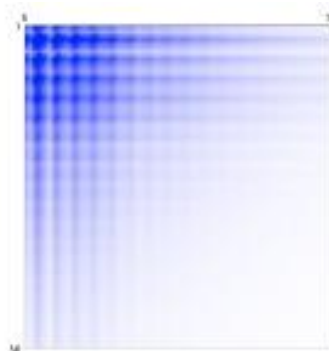
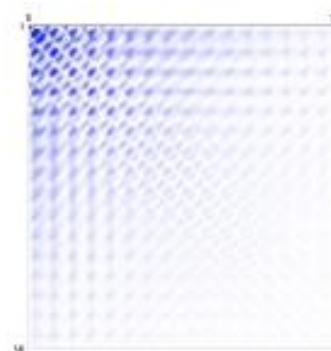


Fig. 3. Illustration of 21 matrices from $s_i s_i^T$ after training.



(a) Optimal regularization



(b) Deep learning regularization



(c) Gaussian process regularization

Data-driven regularization

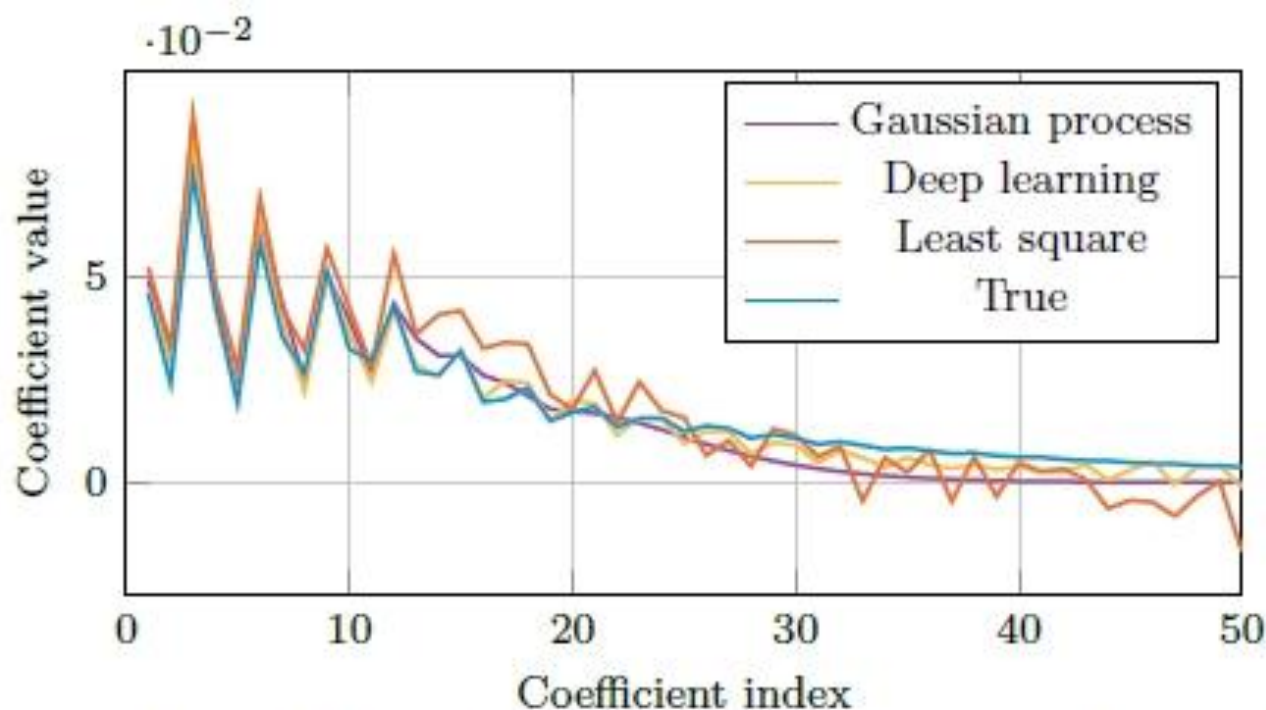
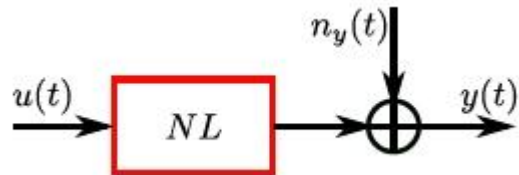


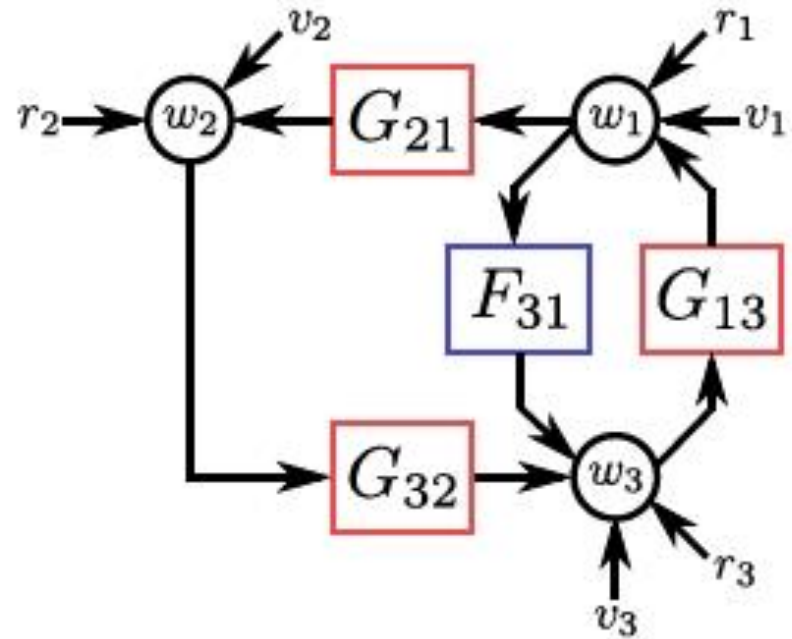
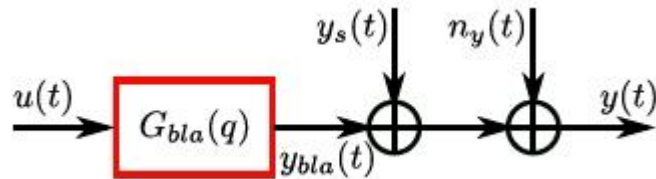
Fig. 5. Estimates of the impulse response coefficients, $\hat{\theta}$, using the inverse regularization matrices from Fig. 4 and the same input and output sequence.

Model	SNR < 5.5	SNR > 5.5
LS	1	1
OR	0.04	0.05
GP	0.31	0.40
DL	0.20	0.23

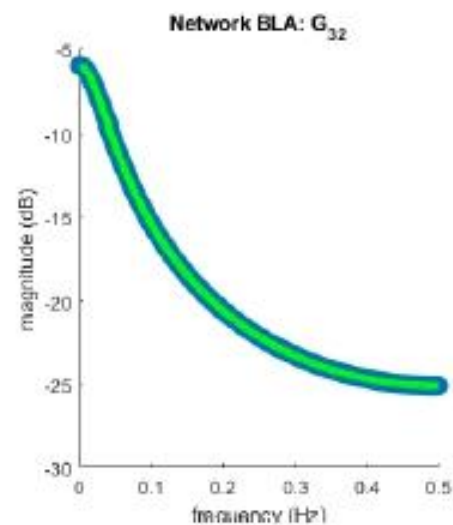
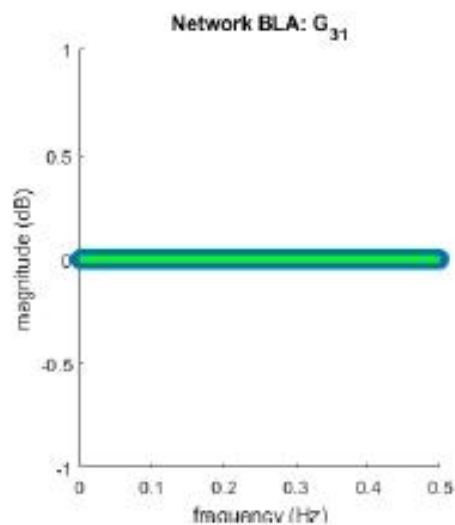
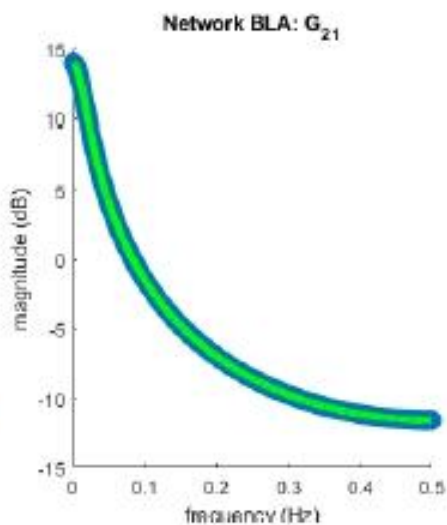
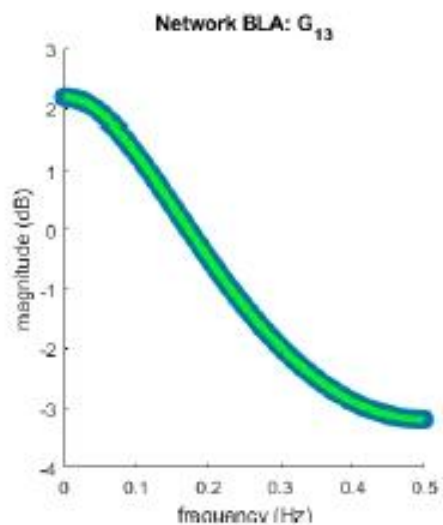
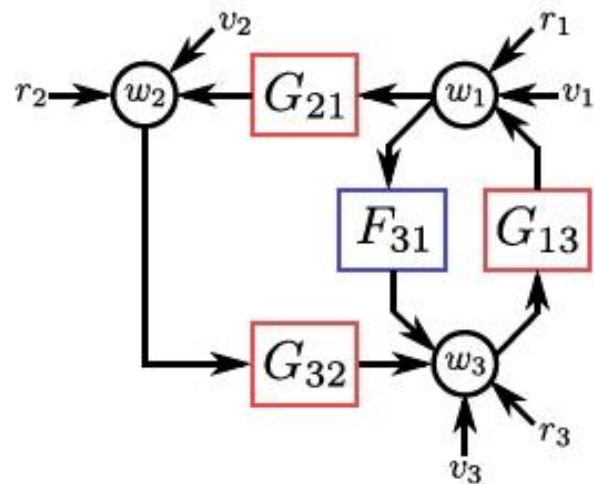
Dynamic Nonlinear Networks



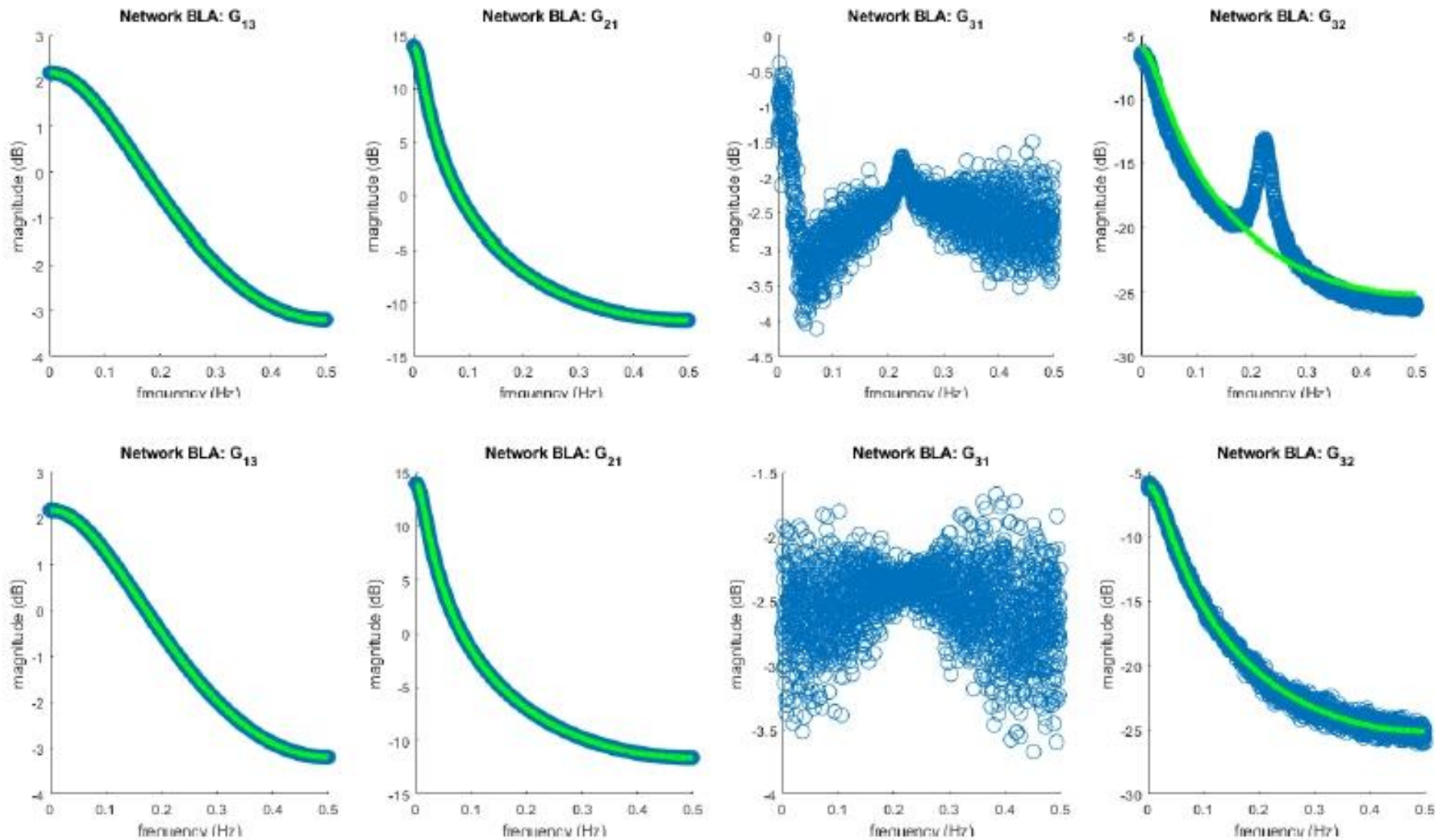
BLA



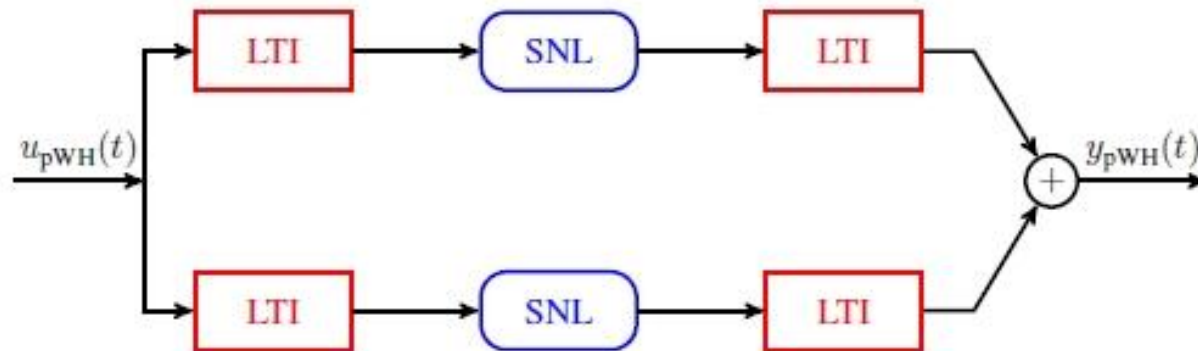
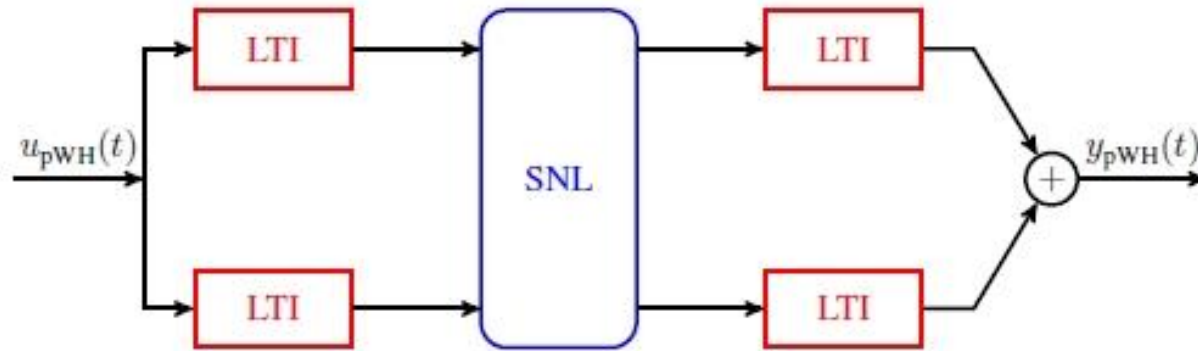
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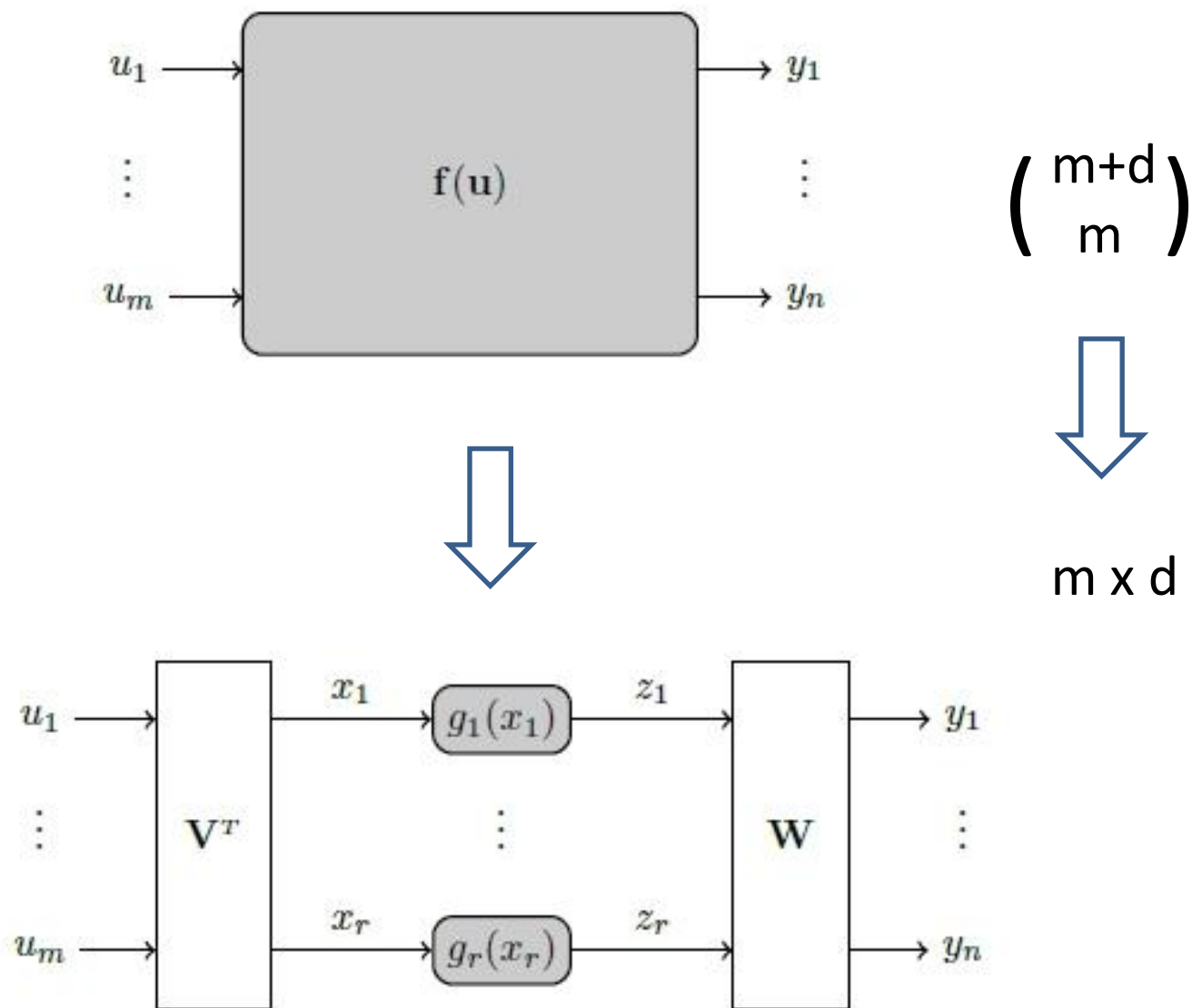
Dynamic Nonlinear Networks



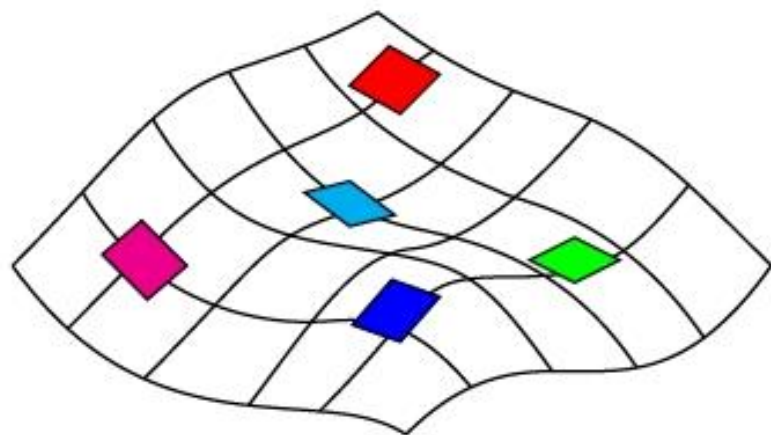
Decoupling



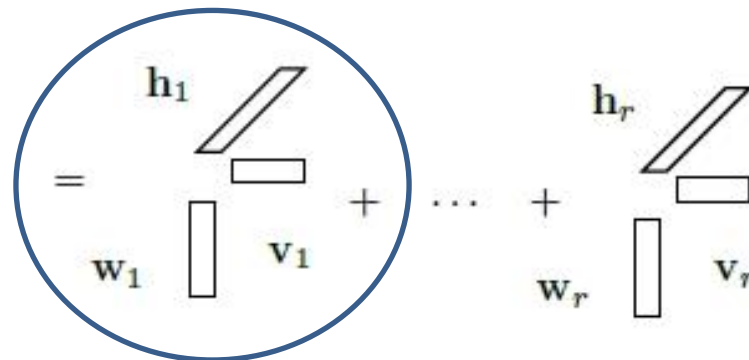
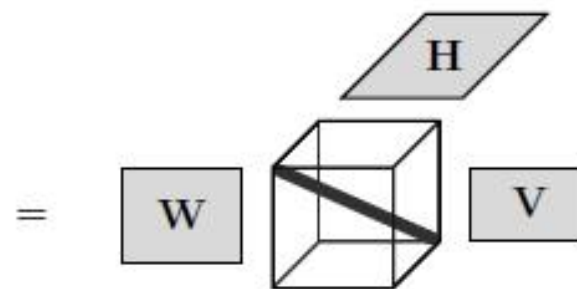
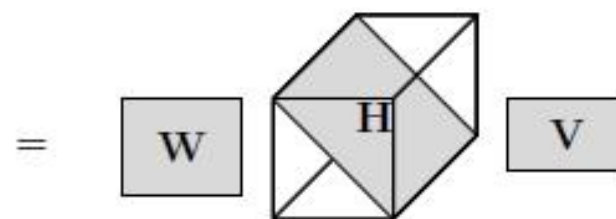
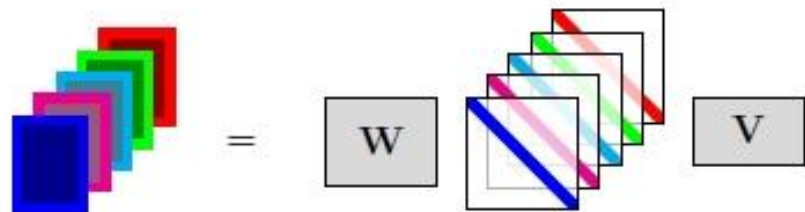
Decoupling



Decoupling



(a)



Decoupling

