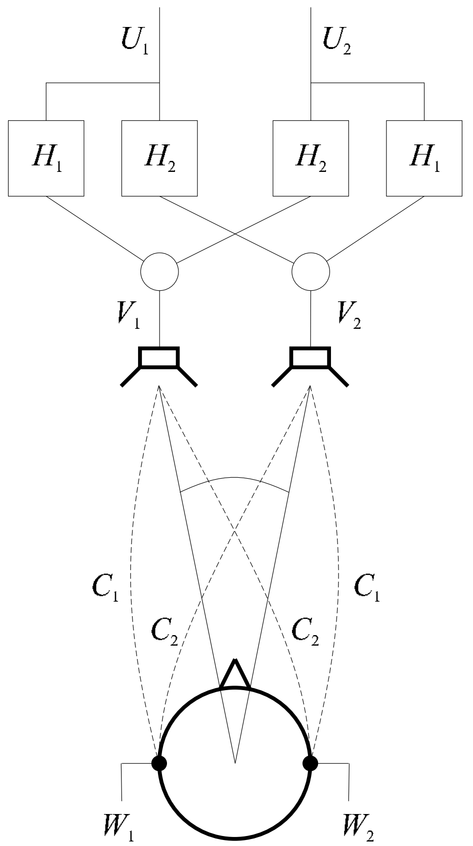

Fig. 1. The variables and the parameters used to define a cross-talk cancellation network. Note that because of the symmetry there are only two different electro-acoustic transfer functions, C_1 and C_2, and the network contains only two different filters, H_1 and H_2

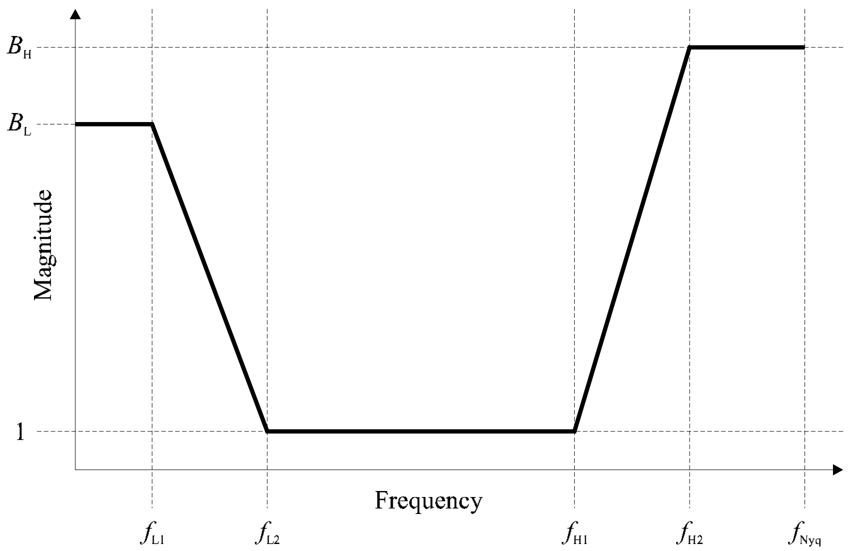

Fig. 2. A suggested magnitude response function for the shape factor $B(z)$. This type of frequency-dependent regularisation ensures that the cross-talk cancellation network does not boost very low, and very high, frequencies excessively

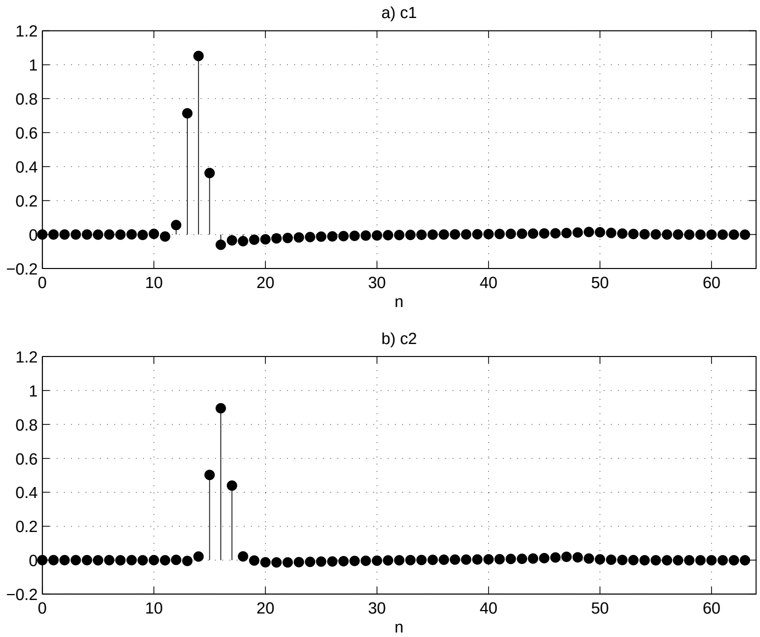

Fig. 3. The impulse responses of a) the direct path C_1 and b) the cross-talk path C_2 as defined in Fig. 1 when the listener's head is modeled as a rigid sphere, and the sampling frequency is 44.1kHz

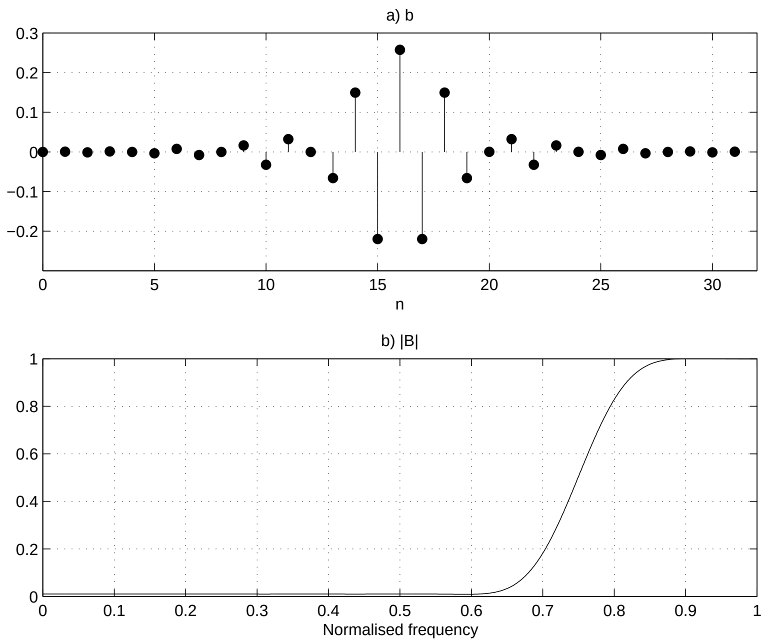

Fig. 4. The properties of the shape factor $B(z)$ used to design a cross-talk cancellation network based on the impulse responses shown in Fig. 3. a) the impulse response of $B(z)$, and b) its magnitude response

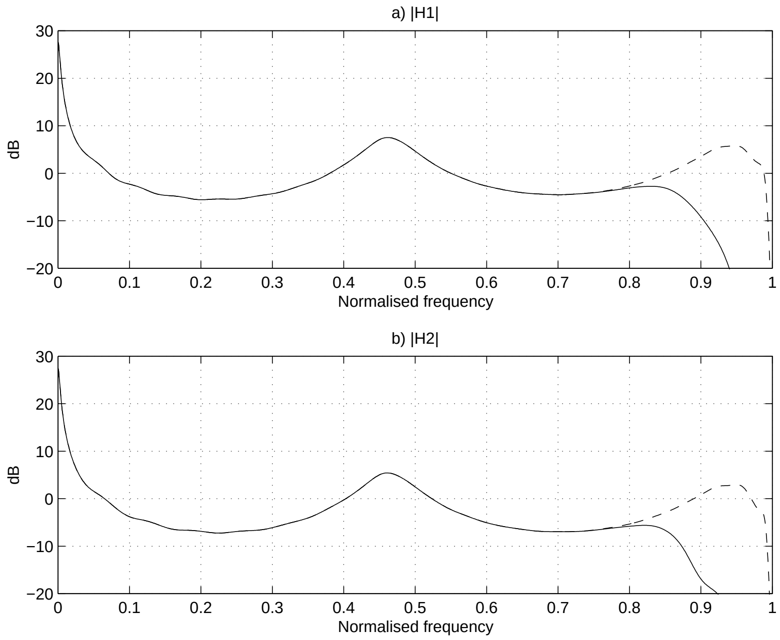

Fig. 5. The magnitude responses of a) $H_1(z)$ and b) $H_2(z)$ calculated with frequency-dependent regularisation (solid lines) and with no regularisation (dashed lines). The shape factor $B(z)$ is that shown in Fig. 4. Note that the regularisation has taken out the peak just below the Nyquist frequency

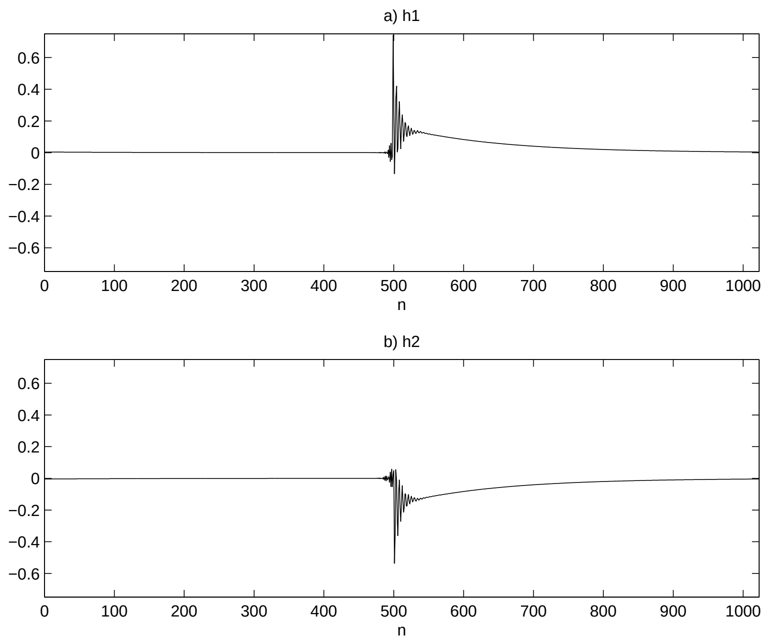

Fig. 6. The impulse responses of the two filters a) $H_1(z)$ and b) $H_2(z)$ whose magnitude responses are shown with the solid lines in Fig. 5. Each impulse response contains 1024 coefficients

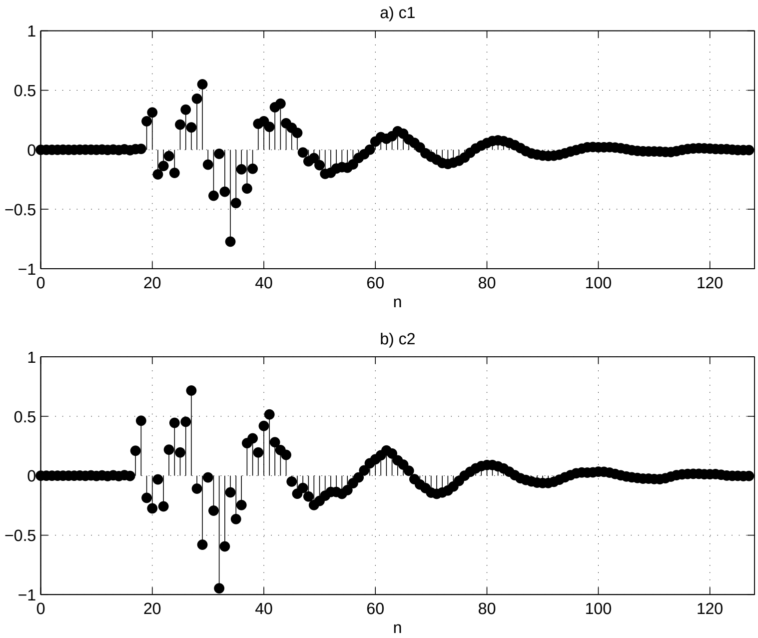

Fig. 7. The impulse responses of a) the direct path $C_1(z)$, and b) the cross-talk path $C_2(z)$ when the two HRTFs are measured on a KEMAR dummy-head in an anechoic chamber at a sampling frequency of 44.1kHz. The data is not equalised for the loudspeaker response

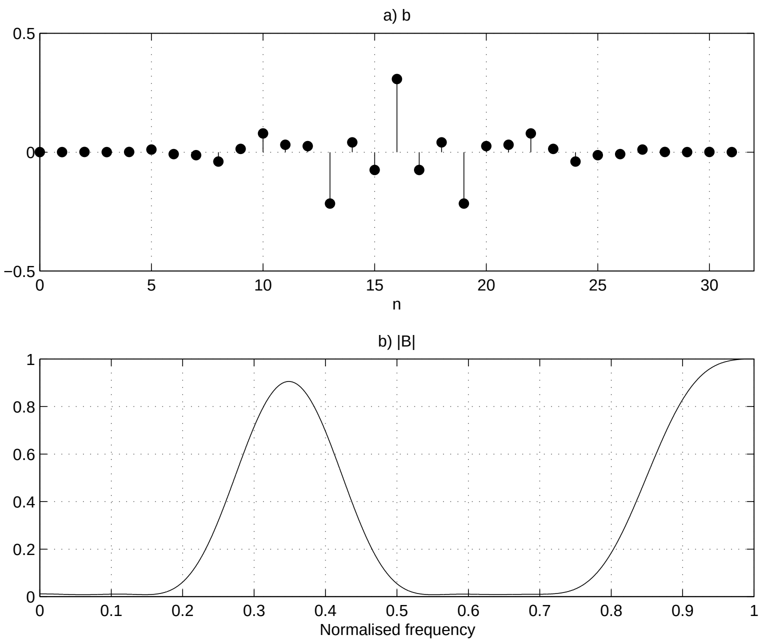

Fig. 8. The properties of the shape factor $B(z)$ used to design a cross-talk cancellation network based on the impulse responses shown in Fig. 7. a) the impulse response of $B(z)$, and b) its magnitude response

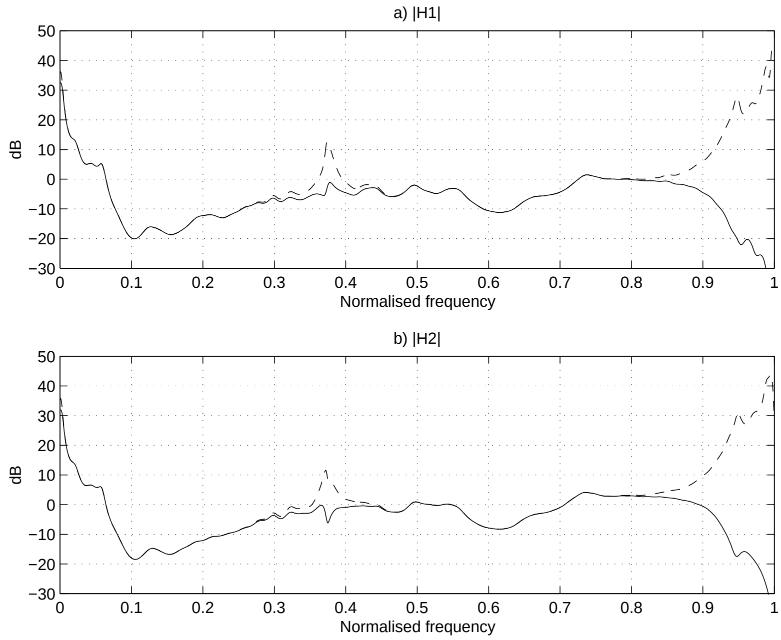

Fig. 9. The magnitude responses of a) $H_1(z)$ and b) $H_2(z)$ calculated with frequency-dependent regularisation (solid lines) and with no regularisation (dashed lines). The shape factor $B(z)$ is that shown in Fig. 8. Note that the regularisation has taken out the peak at approximately $0.35f_{\mathrm{Nyq}}$ and also filtered out the unacceptable boost of the frequencies just below f_{Nyq}

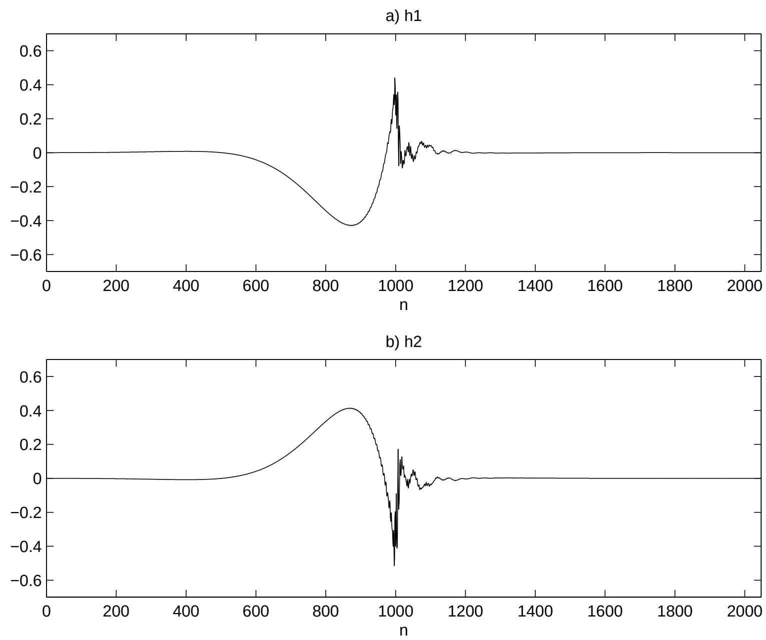

Fig. 10. The two impulse responses, a) $H_1(z)$ and b) $H_2(z)$ whose magnitude responses are shown with the solid lines in Fig. 9. Each impulse response contains 2048 coefficients. Note that the low-frequency component now decays away in *backward* time