

## University of Groningen

### On sound and silence

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# Stellingen

behorende bij het proefschrift

## On Sound and Silence

van Amarins Heeringa

verdedigd op 22 juni 2015 aan de Rijksuniversiteit Groningen

1. Processing sound and silence happens between the ears and is largely impacted by acoustic trauma.
2. Increased gain in the central auditory system, induced by acoustic trauma, is expressed as a reduction of inhibitory sound-evoked responses in units tuned to frequencies at and below the trauma frequency.
3. Acoustic trauma results in enhanced coding of amplitude modulations by the central auditory system.
4. Wiener-kernel analysis is a powerful tool to gain insight in the characteristics of stimulus-evoked excitation and inhibition in the inferior colliculus.
5. The difference between spontaneous behavior of guinea pigs in noise and in silent intervals provides a possible new measure to detect tinnitus.
6. Tinnitus research will be greatly advanced when a measure that objectively determines tinnitus in both humans and animals is discovered.
7. A complete understanding of the neurophysiological consequences of acoustic trauma requires a detailed study at multiple levels of the auditory system and at multiple time points following the trauma.
8. Somatic tinnitus is related to an upregulation of anatomic and functional somatosensory innervation of the auditory system.
9. The more deeply one goes into a specialized topic, the more one realizes how intimately that topic is related to everything else. *Murray Sidman (2008)*
10. Life is like riding a bicycle. To keep your balance you must keep moving. *Albert Einstein*
11. The University is not maintained by its alumni, or by the state, merely to help its graduates have an economic advantage in the life struggle; there is certainly a greater purpose to it. *John F. Kennedy*