

The Auditory System and Human Sound-Localization Behavior



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John van Opstal

Department of Biophysics
Donders Centre for Neuroscience
Radboud University Nijmegen
The Netherlands



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Dedication

**To Dr Dick Donker (Dec 21, 1934–Oct 1, 2014):
neurologist, life artist, lover of music,
and of auditory science.**





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List of Abbreviations

| | |
|------|---|
| 2AFC | Two-alternative forced choice |
| AC | Auditory cortex |
| AM | Amplitude modulation |
| AMP | Auditory median plane |
| AN | Auditory nerve |
| ANN | Artificial neural network |
| AV | Audiovisual |
| AVCN | Antero-ventral part of Cochlear Nucleus |
| BB | Black box |
| BCD | Bone-conduction device |
| BM | Basilar membrane |
| BP | Band-pass |
| BS | Band-stop |
| CI | Cochlear implant |
| CN | Cochlear nucleus |
| CNS | Central nervous system |
| DCN | Dorsal part of Cochlear Nucleus |
| DTF | Directional transfer function |
| DMF | Dynamic movement field |
| FEF | Frontal eye fields |
| FM | Frequency modulation |
| FOV | Field of view |
| FRF | Future receptive field |
| FT | Fourier transform |
| GBC | Globular bushy cell |
| GME | Gaze-motor error |
| GWN | Gaussian white noise |
| HA | Hearing aid |
| HP | High-pass |
| HRTF | Head-related transfer function |
| HSE | Head-shadow effect |
| IC | Inferior colliculus |
| ICc | Central nucleus of IC |
| ICx | External nucleus of IC |
| IHC | Inner hair cell |
| ILD | Interaural level difference |
| INC | Interstitial nucleus of Cajal |
| IOR | Inhibition of return |
| IPD | Interaural phase difference |

xii List of Abbreviations

| | |
|-------|--|
| ISI | Intersaccadic interval |
| ITD | Interaural time difference |
| LP | Low-pass |
| LS | Linear system |
| LSO | Lateral superior olive |
| LT | Laplace transform |
| MAA | Minimum audible angle |
| MAP | Maximum a-posteriori |
| MDT | Medial-dorsal thalamus |
| MF | Movement field |
| MGB | Medial geniculate body |
| MI | Multisensory Index |
| MLB | Medium-lead burst neuron |
| MLE | Maximum Likelihood Estimate |
| MNTB | Medial nucleus of the trapezoid body |
| MSO | Medial superior olive |
| MVN | Medial vestibular nucleus |
| NI | Neural integrator |
| NLS | Nonlinear system |
| NPH | Nucleus prepositus hypoglossi |
| OAE | Oto-acoustic emission |
| OHC | Outer hair cell |
| OMR | Oculomotor range |
| OPN | Omni-pause neuron |
| PG | Pulse generator |
| PPC | Posterior parietal cortex |
| PPRF | Para-pontine reticular formation |
| PSG | Pulse-step generator |
| PVCN | Postero-ventral part of Cochlear Nucleus |
| riMLF | rostral interstitial nucleus of the medial longitudinal fasciculus |
| RM | Reissner's membrane |
| ROC | Receiver operator characteristic |
| RT | Reaction time |
| SBC | Spherical bushy cell |
| SC | Superior colliculus |
| SDT | Signal-detection theory |
| SNR | Signal to noise ratio |
| SPL | Sound-pressure level |
| SR | Spontaneous firing rate |
| SRT | Saccade reaction time |
| SSD | Single-sided deaf(ness) |
| STT | Spatial-to-temporal transformation |
| TM | Tectorial membrane |
| TOT | Tonotopic to oculocentric transformation |
| UHL | Unilateral Conductive Hearing Loss |
| VOR | Vestibular-ocular reflex |
| VPG | Vectorial pulse generator |
| VS | Vector strength |