List of Publications

Full Papers in Refereed Journals

Gockel, H.E. & Carlyon, R.P. (2023). Effect of diotic versus dichotic presentation on the pitch perception of tone complexes at medium and very high frequencies. Scientific Reports, 13, 13247. DOI – 10.1038/s41598-023-40122-8.

Moore, B.C.J., Humes, L.E., Cox, G., Lowe, D. & **Gockel H.E.** (2022). Modification of a method for diagnosing noise-induced hearing loss sustained during military service. Trends in Hearing, 26, 1-9. DOI – 10.1177/23312165221145005.

Gockel, H.E. & Carlyon, R. P. (2022). On mistuning detection and beat perception for harmonic complex tones at low and very high frequencies. The Journal of the Acoustical Society of America, 152 (1), 226-239. DOI - 10.1121/10.0012351.

Gockel, H.E. & Carlyon, R. P. (2021). On musical interval perception for complex tones at very high frequencies. The Journal of the Acoustical Society of America, 149 (4), 2644-2658. DOI - 10.1121/10.0004222.

Gockel, H.E., Moore, B.C.J. & Carlyon, R. P. (2020). Pitch perception at very high frequencies: On psychometric functions and integration of frequency information. The Journal of the Acoustical Society of America, 148 (5), 3322-3333. DOI - 10.1121/10.0002668.

Gockel, H.E. (2020). On some limitations of the Frequency Following Response. Acoustical Science and Technology, 41 (1), 83-89. DOI - 10.1250/ast.41.83.

Gockel, H.E., & Carlyon R.P (2018). Detection of mistuning in harmonic complex tones at high frequencies. Acta Acustica united with Acustica, 104, 766-769. DOI - 10.3813/AAA.919219.

Holmes E., Purcell D.W., Carlyon R.P., **Gockel H.E.** & Johnsrude I.S. (2018). Attentional modulation of envelope-following responses at lower (93-109 Hz) but not higher (217-233 Hz) modulation rates. Journal of the Association for Research in Otolaryngology, 19 (1), 83-97. DOI - 10.1007/s10162-017-0641-9.

Gockel, H.E., Alsindi, S., Hardy, C., & Carlyon, R.P. (2017). Effect of context on the contribution of individual harmonics to residue pitch. Journal of the Association for Research in Otolaryngology, 18 (6), 808-813. DOI - 10.1007/s10162-017-0636-6.

Gockel, H.E., & Carlyon, R.P. (2016). On Zwicker tones and musical pitch in the likely absence of phase locking corresponding to the pitch. The Journal of the Acoustical Society of America, 140 (4), 2257-2273. DOI - 10.1121/1.4963865.

Gockel, H.E., & Carlyon, R. P. (2016). Do Zwicker tones evoke a musical pitch? Advances in Experimental Medicine and Biology, 894, 419-426. DOI - 10.1007/978-3-319-25474-6_44.

Gomersall, P., Turner, R.E., Baguley, D.M., Deeks, J.M., **Gockel, H.E.** & Carlyon, R.P. **(**2016). Perception of stochastic envelopes by normal-hearing and cochlear-implant listeners. Hearing Research, 333, 8-24. DOI - 10.1016/j.heares.2015.12.013.

Gockel, H.E., Krugliak, A., Plack, C. J., & Carlyon, R. P. (2015). Specificity of the human frequency following response for carrier and modulation frequency assessed using adaptation. Journal of the Association for Research in Otolaryngology, 16 (6), 747-762. DOI - 10.1007/s10162-015-0533-9.

Marmel, F., Plack, C.J., Hopkins, K., Carlyon, R.P., **Gockel, H.E.** & Moore, B.C.J. (2015). The role of excitation-pattern cues in the detection of frequency shifts in bandpass-filtered complex tones. The Journal of the Acoustical Society of America, 137 (5), 2687-2697. DOI - 10.1121/1.4919315.

Hughes, L.E., Rowe, J.B., Ghosh, B.C.P., Carlyon, R.P., Plack, C.J. & **Gockel, H.E.** (2014). The binaural masking level difference: Cortical correlates persist despite severe brain stem atrophy in progressive supranuclear palsy. Journal of Neurophysiology, 112, 3086-3094. DOI - 10.1152/jn.00062.2014.

Marmel, F., Linley, D., Carlyon, R.P., **Gockel, H.E.,** Hopkins, K., & Plack, C.J. (2013). Subcortical neural synchrony and absolute thresholds predict frequency discrimination independently. Journal of the Association for Research in Otolaryngology, 14 (5), 757-766. DOI - 10.1007/s10162-013-0402-3.

Deeks, J.M., **Gockel, H.E.,** & Carlyon, R.P. (2013). Further examination of complex pitch perception in the absence of a place – rate match. The Journal of the Acoustical Society of America, 133 (1), 377-388.

Gockel, H.E., Muhammed, L., Farooq, R., Plack, C.J., & Carlyon, R.P. (2013). No evidence for ITD-specific adaptation in the frequency following response. Advances in Experimental Medicine and Biology, 787, 231-238. DOI - 10.1007/978-1-4614-1590-9_26.

Gockel, H.E., Farooq, R., Muhammed, L., Plack, C.J. & Carlyon, R.P. (2012). Differences between psychoacoustic and frequency following response measures of distortion tone level and masking. The Journal of the Acoustical Society of America, 132 (4), 2524-2535.

Moore, B.C.J. & **Gockel, H.E.** (2012). Properties of auditory stream formation. Philosophical Transactions of the Royal Society of London, B, 367, 919-931.

Gockel, H.E., Carlyon, R.P., Mehta, A. & Plack, C.J. (2011). The frequency following response (FFR) may reflect pitch-bearing information but is not a direct representation of pitch. Journal of the Association for Research in Otolaryngology, 12 (6), 767-782.

Moore, B.C.J. & **Gockel, H.E.** (2011). Resolvability of components in complex tones and implications for theories of pitch perception. Hearing Research, 276 (1-2), 88-97.

Gockel, H.E., Carlyon, R.P., & Plack, C.J. (2011). Combination of spectral and binaurally created harmonics in a common central pitch processor. Journal of the Association for Research in Otolaryngology, 12 (2), 253-260.

Plack, C.J., Turgeon, M., Lancaster, S., Carlyon, R.P. & **Gockel, H.E.** (2011). Frequency discrimination duration effects for Huggins pitch and narrowband noise. The Journal of the Acoustical Society of America, 129 (1), 1-4.

Gockel, H.E., Carlyon, R.P., & Plack, C.J. (2010). Combining information across frequency regions in fundamental frequency discrimination. The Journal of the Acoustical Society of America, 127 (4), 2466-2478.

Carlyon, R.P., Deeks, J.M., Shtyrov, Y., Grahn, J., **Gockel, H.E.,** Hauk, O., & Pulvermueller, F. (2009). Changes in the perceived duration of a narrowband sound induced by a preceding stimulus. Journal of Experimental Psychology: Human Perception and Performance, 35 (6), 1898-1912.

Gockel, H.E., Carlyon, R.P., & Plack, C.J. (2009). Pitch discrimination interference between binaural and monaural or diotic pitches. The Journal of the Acoustical Society of America, 126 (1), 281-290.

Gockel, H.E., Hafter, E.R., & Moore, B.C.J. (2009). Pitch discrimination interference: The role of ear of entry and of octave similarity. The Journal of the Acoustical Society of America, 125 (1), 324-327.

Gockel, H.E., Carlyon, R.P., & Plack, C.J. (2009). Further examination of pitch discrimination interference between complex tones containing resolved harmonics. The Journal of the Acoustical Society of America, 125 (2), 1059-1066.

Gockel, H.E., Carlyon, R.P., & Plack, C.J. (2009). Reduced contribution of a nonsimultaneous mistuned harmonic to residue pitch: The role of harmonic number. The Journal of the Acoustical Society of America, 125 (1), 15-18.

Gockel, H.E., Moore, B.C.J., Carlyon, R.P., & Plack, C.J. (2007). Effect of duration on the frequency discrimination of individual partials in a complex tone and on the discrimination of fundamental frequency. The Journal of the Acoustical Society of America, 121 (1), 373-382.

Gockel, H., Moore, B.C.J., Plack, C.J., & Carlyon, R.P. (2006). Effect of noise on the detectability and fundamental frequency discrimination of complex tones. The Journal of the Acoustical Society of America, 120 (2), 957-965.

Gockel, H., Plack, C.J., & Carlyon, R.P. (2005). Reduced contribution of a nonsimultaneous mistuned harmonic to residue pitch. The Journal of the Acoustical Society of America, 118 (6), 3783-3793.

Gockel, H., Carlyon, R.P., & Moore, B.C.J. (2005). Pitch discrimination interference: The role of pitch pulse asynchrony. The Journal of the Acoustical Society of America, 117 (6), 3860-3866.

Gockel, H., Carlyon, R.P., & Plack, C.J. (2005). Dominance region for pitch: Effects of duration and dichotic presentation. The Journal of the Acoustical Society of America, 117 (3), 1326-1336.

Gockel, H., Carlyon, R.P., & Plack, C.J. (2004). Across-frequency interference effects in fundamental frequency discrimination: Questioning evidence for two pitch mechanisms. The Journal of the Acoustical Society of America, 116 (2), 1092-1104.

Gockel, H., Moore, B.C.J., Patterson, R.D., & Meddis, R. (2003). Louder sounds can produce less forward masking: Effects of component phase in complex tones. The Journal of the Acoustical Society of America, 114 (2), 978-990.

Gockel, H., Moore, B.C.J., & Patterson, R.D. (2003). Asymmetry of masking between complex tones and noise: Partial loudness. The Journal of the Acoustical Society of America, 114 (1), 349-360.

Moore, B.C.J. & **Gockel, H.** (2002). Factors influencing sequential stream segregation. Acta Acustica united with Acustica, 88 (3), 320-333.

Gockel, H., Moore, B.C.J., & Patterson, R.D. (2002). Influence of component phase on the loudness of complex tones. Acta Acustica united with Acustica, 88 (3), 369-377.

Gockel, H., Moore, B.C.J., & Patterson, R.D. (2002). Asymmetry of masking between complex tones and noise: The role of temporal structure and peripheral compression. The Journal of the Acoustical Society of America, 111 (6), 2759-2770.

Gockel, H., Carlyon, R.P., & Deeks, J.M. (2002). Effect of modulator asynchrony of sinusoidal and noise modulators on frequency and amplitude modulation detection interference. The Journal of the Acoustical Society of America, 112 (6), 2975-2984.

Gockel, H., Moore, B.C.J., & Carlyon, R.P. (2001). Influence of rate of change of frequency on the overall pitch of frequency modulated tones. The Journal of the Acoustical Society of America, 109 (2), 701-712.

Gockel, H., Carlyon, R.P. (2000). Frequency modulation detection interference produced by asynchronous and nonsimultaneous interferers. The Journal of the Acoustical Society of America, 108 (5), 2329-2336.

Gockel, H., Carlyon, R. P., & Micheyl, C. (1999). Context dependence of fundamental-frequency discrimination: Lateralized temporal fringes. The Journal of the Acoustical Society of America, 106 (6), 3553-3563.

Gockel, H., & Carlyon, R. P. (1998). Effects of ear of entry and perceived location of synchronous and asynchronous components on mistuning detection. The Journal of the Acoustical Society of America, 104 (6), 3534-3545.

Gockel, H. (1998). On possible cues in profile analysis: Identification of the incremented component. The Journal of the Acoustical Society of America, 103 (1), 542-552.

Gockel, H., & Colonius, H. (1997). Auditory profile analysis: Is there perceptual constancy for spectral shape for stimuli roved in frequency? The Journal of the Acoustical Society of America, 102 (4), 2311-2315.

Book Chapters

Plack, C. J., Fitzpatrick, S., Carlyon, R. P., & **Gockel, H. E.** (2010). A temporal code for Huggins pitch? In E. A. Lopez-Poveda, A. R. Palmer, R. Meddis (Eds.), The Neurophysiological Bases of Auditory Perception, Springer: New York, pp 191-199.

Carlyon, R. P., & **Gockel, H.E**. (2008). Effects of harmonicity and regularity on the perception of sound sources. In W. A. Yost, A. N. Popper, R. R. Fay (Eds.), Springer Handbook of Auditory Research: Auditory Perception of Sound Sources, Springer: New York, pp 191-213.

Book Edited

Basic Aspects of Hearing: Physiology and Perception (2013). In Series: Advances in Experimental Medicine and Biology, 787, Springer: New York. Eds: B.C.J. Moore, R.D. Patterson, I. Winter, R.P. Carlyon, H.E. Gockel.

Refereed Abstracts

Gockel, H.E., Krugliak, A., Plack, C.J., & Carlyon, R.P. (2014). Investigation of envelope rate and audio-frequency specific adaptation in the frequency following response (FFR). International Journal of Audiology, 53 (9), 677-678.

Gockel, H.E., Carlyon, R.P., Mehta, A. & Plack, C.J. (2012). The frequency following response (FFR) reflects pitch bearing information but not pitch. International Journal of Audiology, 51 (3), 222-223.

Marmel, F., Plack, C.J., Carlyon, R.P., & Gockel, H.E. (2011). Temporal fine structure sensitivity and frequency selectivity: Effect of sound level on the detection of frequency-shifted harmonics. International Journal of Audiology, 50 (10), 769.

Gockel, H.E., Carlyon, R.P., & Plack, C.J. (2010). Evidence for a common pitch processor for the perception of the residue pitch from binaural and diotic components. International Journal of Audiology, 49 (9), 711-712.

Gockel, H.E., Carlyon, R.P., & Plack, C.J. (2009). Interference between monaural, diotic and Huggins pitches. International Journal of Audiology, 48 (7), 525.

Gockel, H., Moore, B.C.J., Carlyon, R.P., & Plack, C.J. (2007). Effect of duration on the frequency discrimination of individual partials in a complex tone and of F0. International Journal of Audiology, 46 (10), 656-657.

Gockel, H., Moore, B.C.J., & Patterson, R.D. (2003). Partial loudness of complex tones masked by noise and vice versa. International Journal of Audiology, 42 (6), 370.

Gockel, H., Moore, B.C.J., & Patterson, R.D. (2002). Asymmetry of masking between complex tones and noise as a function of phase and level. International Journal of Audiology, 41 (4), 256.

Gockel, H., & Carlyon, R.P. (2001). Non-simultaneous frequency modulation detection interference. British Journal of Audiology, 35, 130-131.

Gockel, H., Carlyon, R.P., & Moore, B.C.J. (2000). Pitch of asymmetrically frequency-modulated tones. British Journal of Audiology, 34, 99.

Gockel, H., Carlyon, R.P., & Micheyl, C. (1999). Effects of lateralized temporal fringes on fundamental-frequency discrimination. British Journal of Audiology, 33 (2), 117-118.

Gockel, H., & Carlyon, R.P. (1998). Effects of lateralization on the detection of mistuning. British Journal of Audiology, 32 (2), 104.

Gockel, H., & Carlyon, R.P. (1997). Factors underlying the detection of inharmonicity in complex tones. British Journal of Audiology, 31 (2), 105-106.

Conference Proceedings

Gockel, H.E., Krugliak, A., Plack, C.J., & Carlyon, R.P. (2013). Evidence for modulation rate specific adaptation in the frequency following response? Proceedings of Meetings on Acoustics, 19, (pp. 050123, 8 pages), online only (http://dx.doi.org/10.1121/1.4799324).

Gockel, H. (2000). Perceptual grouping and pitch perception. In A. Schick, M. Meis and C. Reckhardt (Eds.), Contributions to Psychological Acoustics. Results of the 8th Oldenburg Symposium on Psychological Acoustics, (pp.275-294). Oldenburg: BIS.

Gockel, H., Carlyon, R.P., & Micheyl, C. (1999). The effect of lateralized temporal fringes on fundamental frequency discrimination. In T. Dau, V. Hohmann and B. Kollmeier (Eds.), Psychophysics, Physiology and Models of Hearing, (pp. 101-104). Singapore: World Scientific.

Gockel, H., & Carlyon, R.P. (1997). On the detection of inharmonicity in complex tones. In A. Schick and M. Klatte (Eds.), Contributions to Psychological Acoustics. Results of the seventh Oldenburg Symposium on Psychological Acoustics, (pp. 397-404). Oldenburg: BIS.

Gockel, H., & Colonius, H. (1993). Discrimination of auditory profile stimuli roved in frequency. In A. Schick (Ed.), Contributions to Psychological Acoustics. Results of the sixth Oldenburg Symposium on Psychological Acoustics, (pp. 287-299). Oldenburg: BIS.

Conference Abstracts

Gockel, H. E., & Carlyon, R. P. (2019). Revisiting superoptimal perceptual integration for pitch at high frequencies. Journal of the Acoustical Society of America, 145 (3), 1721.
Gockel, H., Carlyon, R. (2016). Zwicker tones: a musical pitch percept? Association for Research in Otolaryngology, 39, 597.
Gockel, H. E., Alsindi, S., Hardy, C., & Carlyon, R. P. (2014). Influence of context on the relative pitch dominance of individual harmonics. Journal of the Acoustical Society of America, 135 (4), 2161.
Gockel, H.E., Krugliak, A., Plack, C.J., & Carlyon, R.P. (2013). Evidence for modulation rate specific adaptation in the frequency following response? Journal of the Acoustical Society of America, 133 (5), 3429.
Marmel, F., Plack, C., Carlyon, R., Gockel, H., & Moore, B. (2012). Temporal fine structure sensitivity and frequency selectivity: Effect of sound level on the detection of frequency-shifted harmonics. Association for Research in Otolaryngology, 35, 220-221.
Marmel, F., Linley, D., Plack, C., Carlyon, R., & Gockel, H. (2012). Subcortical encoding of the frequency of pure tones: Effects of age and cochlear hearing loss. Association for Research in Otolaryngology, 35, 28-29.
Gockel, H., Carlyon, R., Farooq, R., Muhammed, L., & Plack, C. (2012). Estimation of the level of the cubic difference tone in the frequency following response (FFR). Association for Research in Otolaryngology, 35, 77.
Gockel, H.E., Carlyon, R.P., Mehta, A. & Plack, C.J. (2011). The frequency following response for dichotic pitch stimuli: No evidence for pitch encoding. Journal of the Acoustical Society of America, 129 (4), 2592.
Gockel, H., Plack, C. & Carlyon, R. (2011). The frequency following response (FFR) for frequency-shifted complex tones, revisited. Association for Research in Otolaryngology, 34, 308-309.
Gockel, H.E., Carlyon, R.P., & Plack, C.J. (2010). Evidence for a common pitch processor for the perception of the residue pitch from binaural and dichotic pitch components. Association for Research in Otolaryngology, 33, 340.
Gockel, H.E., Carlyon, R.P., & Plack, C.J. (2008). Pitch discrimination: Combination of information across frequency. Journal of the Acoustical Society of America, 123 (5), 3563.
Gockel, H.E., Carlyon, R.P., & Plack, C.J. (2007). Pitch discrimination interference: Monaural and binaural pitches. Journal of the Acoustical Society of America, 121 (5), 3068.
Gockel, H.E., Carlyon, R.P., & Plack, C.J. (2006). Testing the role of harmonic number in the contribution of a nonsimultaneous mistuned harmonic to residue pitch. Journal of the Acoustical Society of America, 119 (5), 3332-3333.
Gockel, H.E., Carlyon, R.P., & Plack, C.J. (2005). Further explorations of the contribution of a nonsimultaneous mistuned harmonic to residue pitch. Journal of the Acoustical Society of America, 117 (4), 2539.
Gockel, H., Carlyon, R.P., & Plack, C.J. (2004). Dominance region for pitch: Effect of duration. Journal of the Acoustical Society of America, 115 (2), 2389.
Gockel, H., Carlyon, R.P., & Plack, C.J. (2003). F0 discrimination interference: Effects of resolved tone complexes and noise on fundamental frequency discrimination of unresolved complex tones. Journal of the Acoustical Society of America, 113 (4), 2290.

Gockel, H., Moore, B.C.J., Patterson, R. (2002). Influence of component phase on the loudness of complex tones. Association for Research in Otolaryngology, 25, 178-179.
Gockel, H., Carlyon, R.P., & Micheyl, C. (1999). Fundamental frequency discrimination: Influence of lateralized temporal fringes. Journal of the Acoustical Society of America, 105 (2), 1388.
Gockel, H., & Carlyon, R.P. (1997). Effects of contralateral presentation and interaural intensity differences on the detection of mistunig. Journal of the Acoustical Society of America, 101 (5), 3107.
Gockel, H., & Colonius, H. (1995). Identification of the incremented component in profile stimuli. Journal of the Acoustical Society of America, 97 (5), 3272.

Invited Talks

Pitch perception and detection of mistuning in harmonic complex tones at high frequencies (September 2019, China University of Mining and Technology, Xuzhou, China).
On some limitations of the frequency following response (October 2018, International Symposium on Universal Acoustical Communication, Tohoku University, Sendai, Japan).
On some limitations of the Frequency Following Response (May 2017, MRC Institute of Hearing Research, Nottingham, UK).
The Frequency Following Response: Where it does (not) come from and what it does (not) show (March 2017, The University of Canterbury, Christchurch; April 2017, The University of Auckland, NZ).
FFR: Where it does (not) come from and what it does (not) show (May 2014, Workshop on the "Frequency Following Response", University College London, UK).
Pitch representation in the frequency following response (FFR)? (September 2012, 59th Open Seminar on Acoustics, Posnan - Boszkowo, Poland).
Does the frequency following response (FFR) reflect pitch? (April 2012, Workshop on "New Ideas in Hearing: Hot topics in Audiology", Ecole Normale Supérieure, Paris, France).
On pitch integration (October 2011, The University of Manchester, Manchester, UK).
The cans and cannots of pitch integration (June 2010, MRC Institute of Hearing Research, Nottingham, UK).
The combination of F0 information across spectral regions (December 2009, Workshop on "Auditory temporal processing in normal and impaired ears", Ecole Normale Supérieure, Paris, France).
Integration of information across frequency in pitch perception: The good, the bad and the ugly (April 2009, Centre for Applied Hearing Research, Technical University of Denmark, Copenhagen, Denmark).
Pitch discrimination and across-frequency interference (November 2007, Dept. of Biology and Environmental Sciences, Carl-von-Ossietzky University, Oldenburg, Germany).
Pitch discrimination interference (PDI): Monaural and binaural pitches (February 2007, Dept. of Psychology, University of California, Berkeley, USA).
Pitch discrimination interference (PDI) with diotic and dichotic pitches (December 2006, Ecole Normale Supérieure, Paris, France).

Effects of component phase on masking and loudness (March 2002, Institute of Acoustics, Adam Mickiewicz University, Poznan, Poland).

Perceptual grouping and pitch perception (1999, Eighth Oldenburg Symposium on Psychological Acoustics). Published in: Gockel, H. (2000). Perceptual grouping and pitch perception. In A. Schick, M. Meis and C. Reckhardt (Eds.), Contributions to Psychological Acoustics. Results of the 8th Oldenburg Symposium on Psychological Acoustics, (pp.275-294). Oldenburg: BIS.