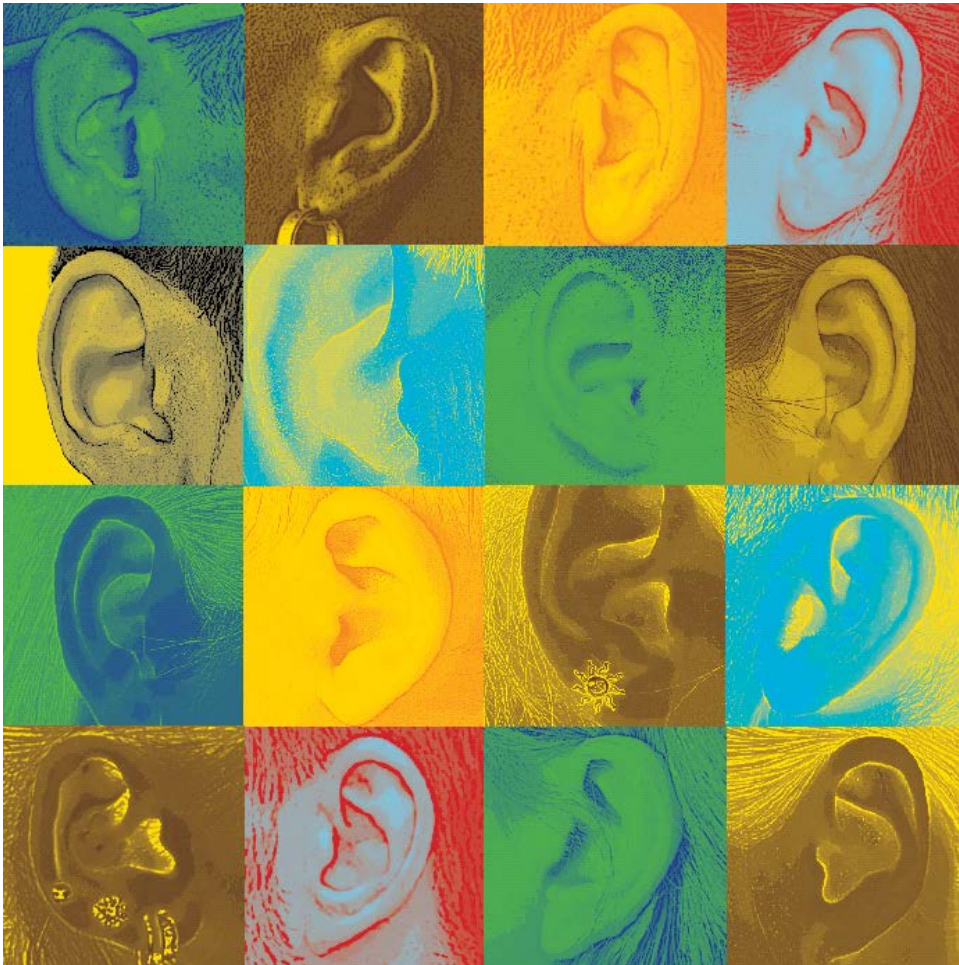


5th
**International Symposium on Auditory
and Audiological Research**

ISAAR 2015

**“Individual hearing loss –
Characterization, modelling, compensation strategies”**



August 26-28, 2015
Hotel Nyborg Strand, Denmark

Programme and abstracts

S5.3 – Fri 28 Aug, 08:40-09:10

Loss of speech perception in noise – Causes and compensation

Harvey Dillon*, **Elizabeth Beach**, **Ingrid Yeend**, **Helen Glyde** - NAL, The HEARing CRC, Sydney, Australia

Jörg Buchholz - NAL, Macquarie University, The HEARing CRC, Sydney, Australia

Jorge Mejia, **Tim Beechey**, **Joaquin Valderrama** - NAL, The HEARing CRC, Sydney, Australia

Mridula Sharma - Macquarie University, The HEARing CRC, Sydney, Australia

This paper reports on two of the probably many reasons why hearing-impaired people need better signal-to-noise ratios (SNRs) than others to communicate in background noise, and shows the effectiveness of beamforming in addressing this deficit. The first reason is inaudibility of high-frequency sounds, even when aided, as these sounds have the largest head diffraction effects, which are the key to enabling better-ear glimpsing, which most facilitates speech understanding in spatialized noise. The second (probable) reason is reduced resolution arising from noise damaging high-level nerve fibres. Early data from a comprehensive experiment examining this behaviourally and electrophysiologically will be presented. Wireless remote microphones most improve SNR, but cannot always be used. Next best are super-directional binaural beamformers. These improve performance over conventional directional microphones by 1 to 5 dB improvement in speech reception threshold in noise (SRTn). The presentation will show how the degree of improvement depends on the manner of evaluation. Evaluations performed at SNRs typical of realistic listening conditions, whether based on perceived quality, change in acceptable background noise level, or change in SRTn, are greater than when SRTn is evaluated at very negative SNRs.

Corresponding author: Harvey Dillon (harvey.dillon@nal.gov.au)