How do low frequency acoustic cues improve speech recognition and music appreciation for cochlear implant users?

Fact Sheet

Project Information

LFAA

Grant agreement ID: 253047

Project closed

Start date
1 December 2010

End date
30 November 2013

Funded under
Specific programme "People" implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013)

Total cost
€ 265 798,50

EU contribution
€ 265 798,50

Coordinated by
THE PROVOST, FELLOWS, FOUNDATION SCHOLARS & THE OTHER MEMBERS OF BOARD, OF THE COLLEGE OF THE HOLY & UNDIVIDED TRINITY OF QUEEN ELIZABETH NEAR DUBLIN
Ireland

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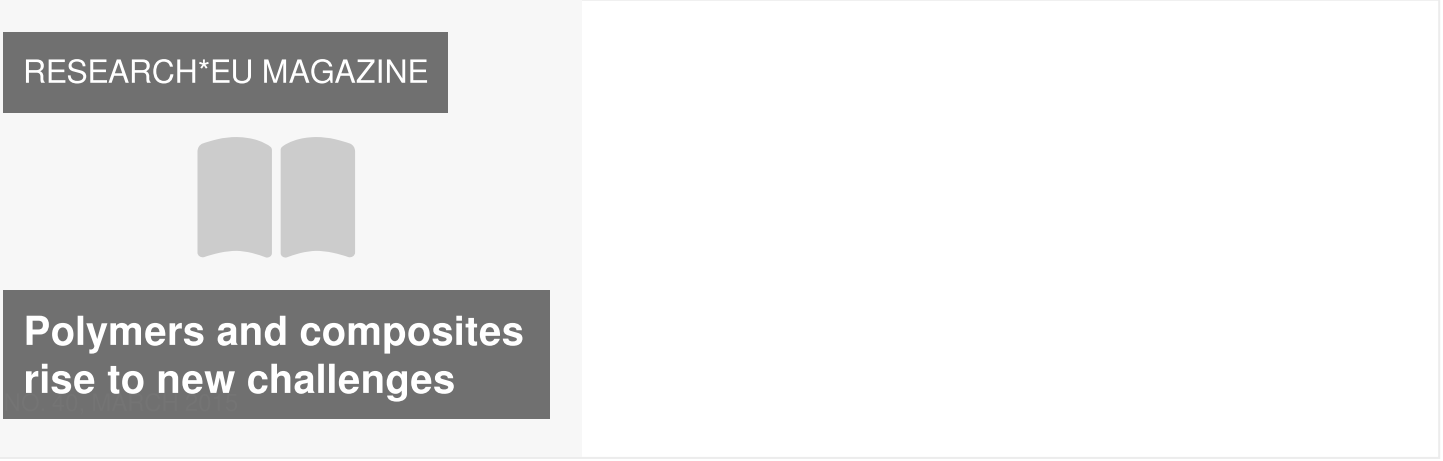

Objective

A cochlear implant (CI) is a device which restores hearing in deaf people by electrically stimulating the auditory nerve. It is the most successful neural prosthesis ever developed. Routine cochlear implantation began in the 1970s and since then CIs have helped restore hearing in over 120,000 deaf people world wide. When CIs were first commercialized the advantages of having a CI were limited and speech recognition after implantation was often poor. As a result only the profoundly deaf were implanted. Advances in speech processing strategies and implant design now mean that most CI users can effectively converse over the telephone but speech recognition in noise, understanding multi-talker speech and music appreciation remain problematic. As a result these advances people with some residual hearing, who would previously not have been considered for implantation, are now being implanted on a routine basis. Recent studies have shown that these CI users with residual low frequency hearing have both better speech recognition in noise and melody recognition. This phenomenon, referred to as low frequency acoustic advantage (LFAA) in such CI users, is poorly understood. The objective of this project is to determine the acoustic cues that produce the LFAA and to understand the neural mechanisms that underlie it. Speech recognition modeling will be used to reveal the important acoustic cues that mediate the LFAA and auditory evoked potential measurements will be used to gain a better understanding of the neural mechanism behind the LFAA. An improved understanding of the LFAA will allow us to develop CI processor designs and hearing aids which more fully exploit this advantage. These advances will directly benefit the hearing impaired community in Europe and increase European competitiveness within the biomedical technology sector.

Fields of science (EuroSciVoc)

medical and health sciences > health sciences > infectious diseases > RNA viruses > **HIV**

medical and health sciences > medical biotechnology > **implants**

Programme(s)

FP7-PEOPLE - Specific programme "People" implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013)

Topic(s)

FP7-PEOPLE-2009-IOF - Marie Curie Action: "International Outgoing Fellowships for Career Development"

Call for proposal

FP7-PEOPLE-2009-IOF
See other projects for this call

Funding Scheme

MC-IOF - International Outgoing Fellowships (IOF)

Coordinator

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EU contribution

€ 265 798,50

Total cost

No data

Address

COLLEGE GREEN TRINITY COLLEGE
D02 CX56 Dublin

Ireland

Region

Ireland > Eastern and Midland > Dublin

Activity type

Higher or Secondary Education Establishments

Links

Contact the organisation Website
Participation in EU R&I programmes
HORIZON collaboration network

Last update: 6 September 2024

Permalink: https://cordis.europa.eu/project/id/253047