**SOUND CATERPILLAR – AN INTERACTIVE, MUSICAL AUDITORY TRAINING GAME FOR HEARING IMPAIRED CHILDREN**  
**Leen De Bruyn**, Birgit Philips, Dirk Moelants, Pieter Coussement, Marc Leman, Ingeborg Dhooge  
1. Ghent University, IPEM – Department of Musicology, Ghent, Belgium  
2. Ghent University, Department of Oto-rhino-laryngology, Ghent, Belgium  

**Aim:** Investigation of sound discrimination and identification abilities in hearing impaired children aged six to twelve years.  

**Material and methods:** We developed a social, interactive musical sound discrimination game as a scientific tool. Based on this, timbre and melody discrimination were assessed in children with cochlear implant(s) (CI, n=24) and hearing aid(s) (HA, n=24) and compared to normal hearing children (NH, n=136).  

**Results:** We find no significant differences between NH, HA and CI for timbre discrimination and see a clear development of timbre discrimination abilities with age regardless of the hearing impairment or aid. For melody discrimination we find a strong development in older NH-children, whereas this improvement is not established in HA and CI children. HA and CI children clearly focused much more on aspects of sound quality as a discrimination strategy, whereas NH-children relied on sound identification or association.  

**Conclusions:** Our results are very promising for further development of this sound game for assessment and training of auditory skills in the hearing impaired.