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EASA Member of Class II

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Colloquium 'Art meets Medicine'

### **Title: What happens to our brain in the absence of sound**

#### **Abstract**

Our brain is a remarkable organ. It 'controls' everything we do – from reading a book, running, doing math, painting a picture, or writing a symphony. When our sensory organs (ears, nose, eyes, skin...) are stimulated they send inputs to our brain, where those inputs are processed and translated into meaningful information.

But what happens when our brain does not receive one of the sensory inputs from birth? For instance, when a blind person cannot see a painting or a deaf person never heard a human voice nor heard a beautiful melody of singing birds.

Functional and structural studies show that our brain has a remarkable ability to reorganize itself in the absence of one or more sensory modalities. In our research group, we were interested what happens with our brains in the complete absence of the auditory input. Do you think the auditory brain areas in deaf do not develop or are they the same as in normal hearing subjects? Can auditory brain areas be used for processing of other sensory stimuli or some other information in the deaf? I will present the results of our and other studies and address the process of cross-modal plasticity.

We will also discuss the opposite effect – what happens when our brains are exposed to sounds, including music. And we will try to answer the question if it is possible to be deaf and compose music.