

# RECONSTRUCTION OF THE 3D GEOMETRY OF THE OSSICULAR CHAIN BASED ON MICRO-CT IMAGING

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## **Abstract**

Modelling of the sound transmission process from the external ear canal through the middle ear structures to the cochlea is often performed using the finite element method. This requires knowledge of the geometry of the object being modelled. The paper shows the results of reconstruction of the 3D geometry of the ossicular chain. The micro-CT images of a cadaver's temporal bone were used to carry out the reconstruction process. The obtained geometry may be used not only for modelling of the middle ear mechanics before and after ossicular replacement but also for production of anatomical middle ear prostheses, calculation of inertial properties of the ossicular bones or educating radiologist and otolaryngologist.

**Keywords:** middle ear, micro-CT, 3D geometry