**Actuated Cochlear Implant Electrode Assembly Using**

**Shape Memory Alloys**

A. Harsh Rana1 and B. Maitreyee Bhalme2

1 Department of Mechanical Engineering, IIT Guwahati, India

2 Department of Biosciences and Bioengineering, IIT Guwahati, India

E-mail: *harsh.ajay@iitg.ac.in*

**Abstract**

 Cochlear implants are electronic devices which are meant for improving hearing. It has been known that in cochlear implants, the distance between the spiral ganglia and the electrodes affects the device's efficiency. Using a Shape Memory Alloy can give the curvature to the otherwise straight electrode in order to get the modiolus hugging shape. In this paper, an electrode array is made of titanium-nickel SMA backbone wire, which changes its shape. Development of a Shape Memory Alloy (SMA) embedded intranuclear electrode to reduce the distance between spiral ganglia and electrodes in cochlear implants is the main aim of the study.