**Objective**

*To analyse the natural frequencies of rat whiskers by treating them as a viscoelastic material.*

**Description**

Rats use their whiskers to detect and discriminate soft, hard, smooth and rough surfaces. Understanding the rat whisker sensor system becomes an interesting research topic so as to understand mammalian sensory processing. It is believed that the vibration behavior of rat whisker plays a significant role in this sensory system.

In this summer research project, the student is required to carry out the following tasks:
1. Literature review to understand the background information and the state-of-the-art of the research topic.
2. Establish the differential vibration equation of a rat whisker by considering the viscoelastic behaviour of this biomaterial.
3. Write Matlab codes to resolve the differential equation and to find the natural frequencies of the whisker.
4. Write a detailed report to summarize the study.

Some information on this project can be found from the following papers: