

## **A Proposal for**

### **Material response to micro structural mechanical thermal and biological stimuli**

**Prof. Kantesh Balani**

**Department of Material Science and Engineering, Indian Institute of Technology, Kanpur**

**kbalani@iitk.ac.in, 9198228798**

#### **I. Objectives of the Virtual Lab**

The main objective is to observe the surface properties via the wetting behavior of material or extracting the biological response to the surface of biomaterial. In addition ionic conductivity dependence on the composition of material is explained here with.

#### **II. List of experiments**

1. Creep Transient Based on Material Selection (Pt/Mg)
2. Selection of Obstacle Distance ( $\lambda$ , grain boundary or precipitate) -
3. Selection of Obstacle Density ( $\rho$ , number of grains/precipitate) -
4. Hardness & Modulus
5. Indent Depth
6. Plastic Work
7. Contact Angle Measurement
8. To Image the Cytoskeleton of Cells Proliferation On Biomaterial Surface
9. To Image the Nucleus of Cells Proliferation On Biomaterial Surface
10. Ionic Conductivity YSZ Electrolyte Material For solid Oxide Fuel Cell