

# SUrface NAnostructuring and Growth (SUNAG) laboratory Institute of Physics, Bhubaneswar

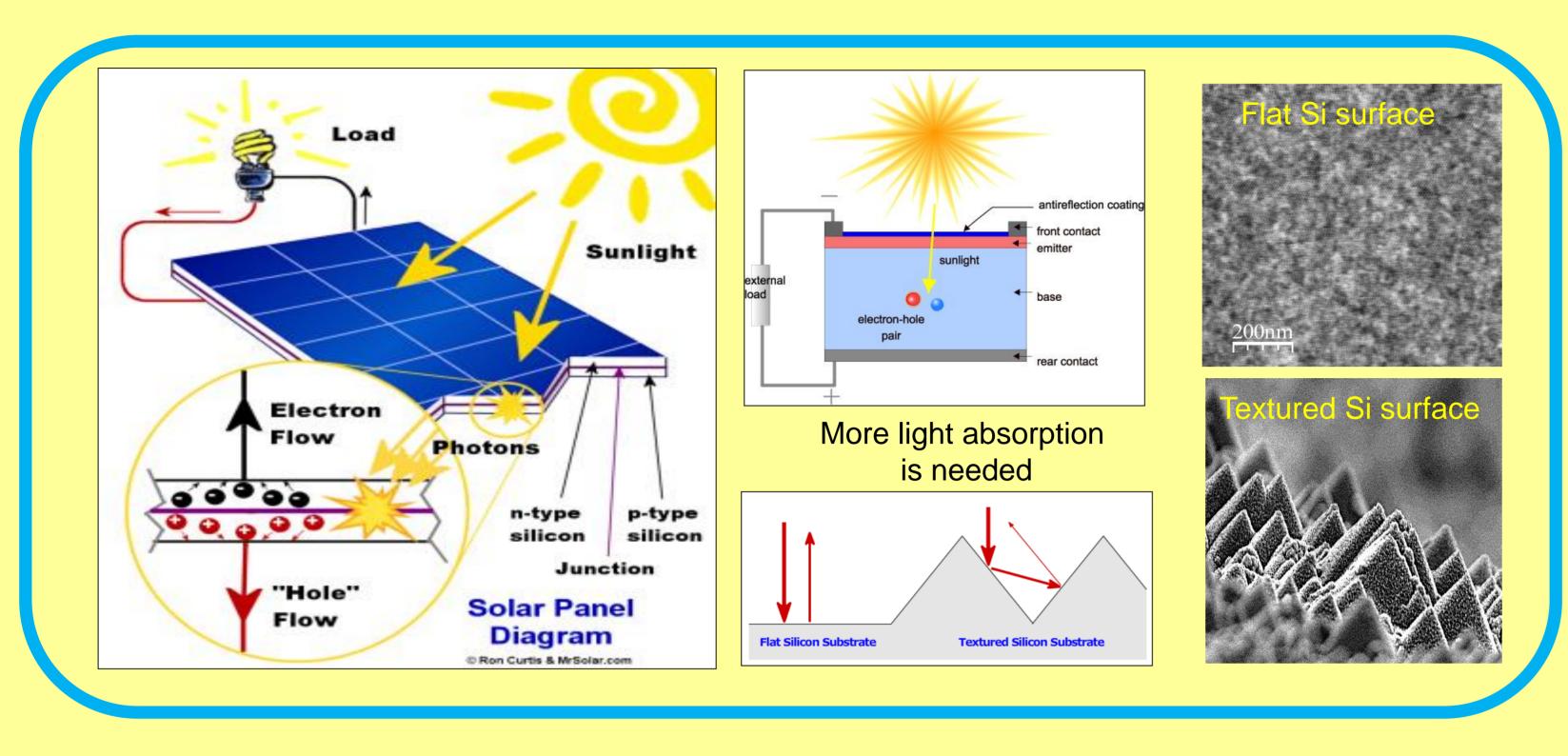


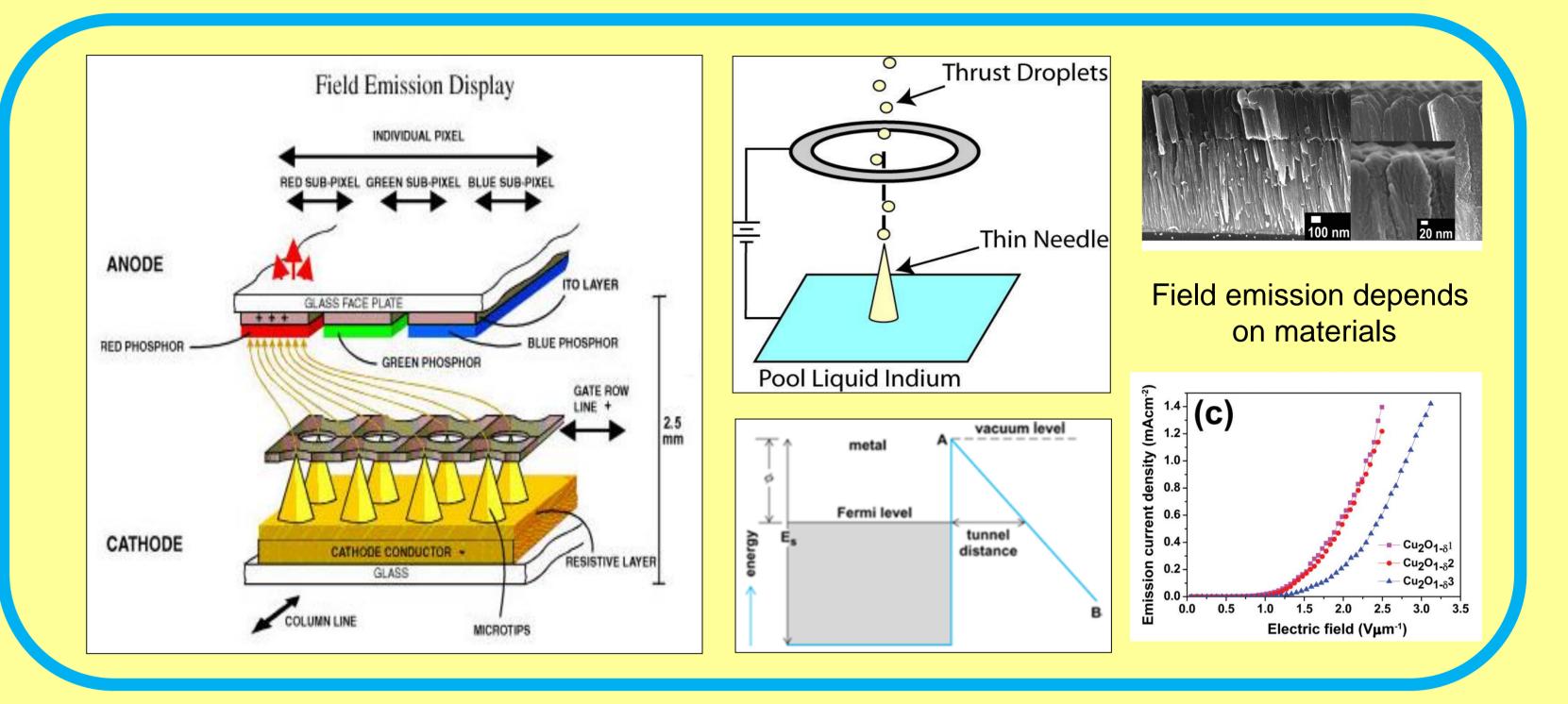
#### Thrust areas of research

Energy research:
Thin film based solar cell

Physical properties of thin films: Structural, electrical, magnetic, vibrational, etc.

### Applications of thin films





#### Use of solar cells in real life









#### Use of field emitters in real life



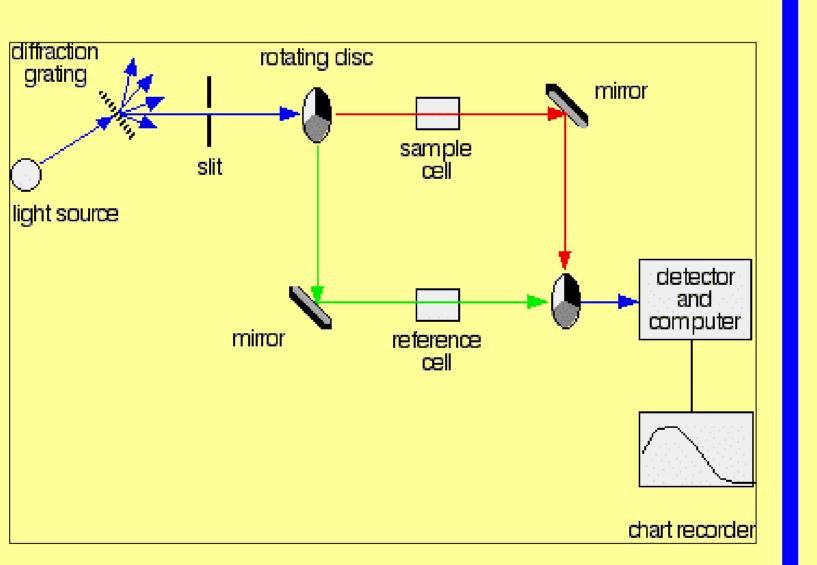






# **UV-Vis spectrophotometer**

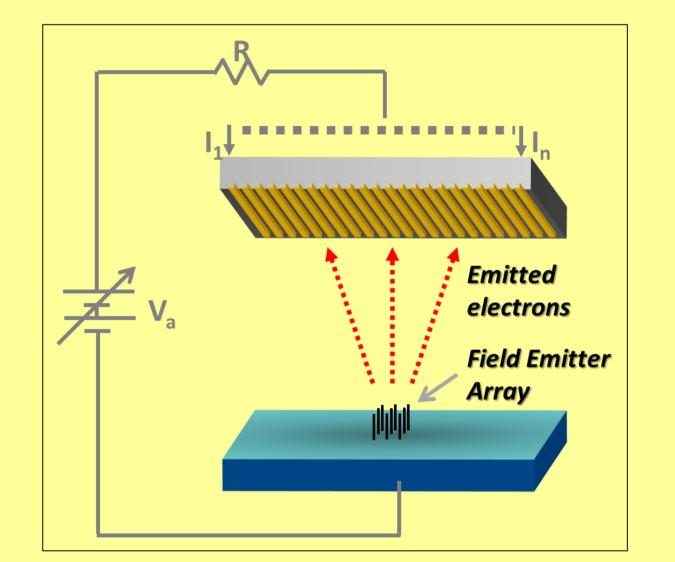




This system is used to study the absorption, reflectance, and transmittance of thin films

# Field emission setup

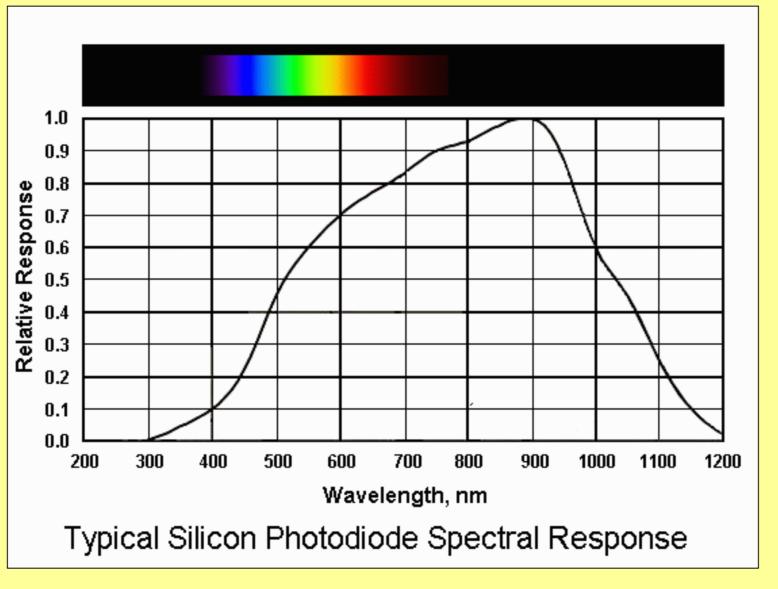




This system is used to study the field emission properties of materials

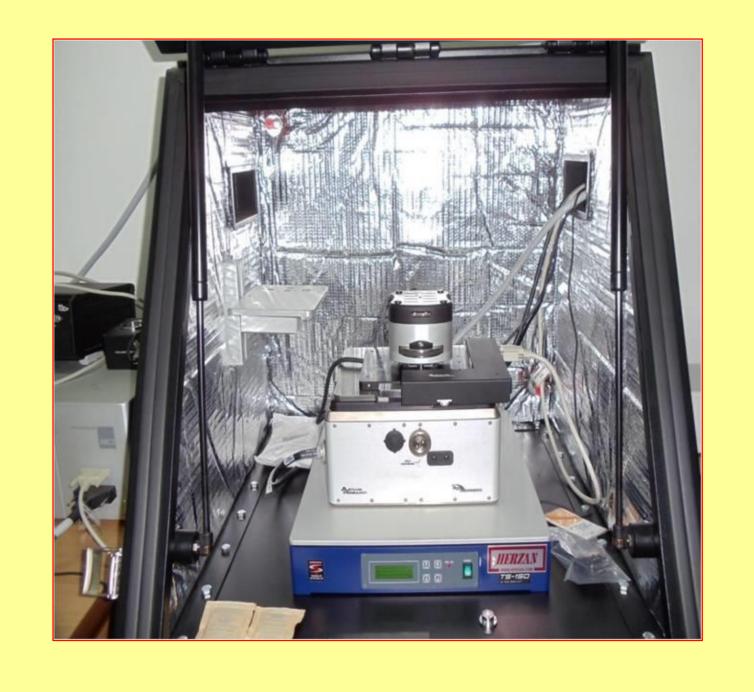
# Spectral response

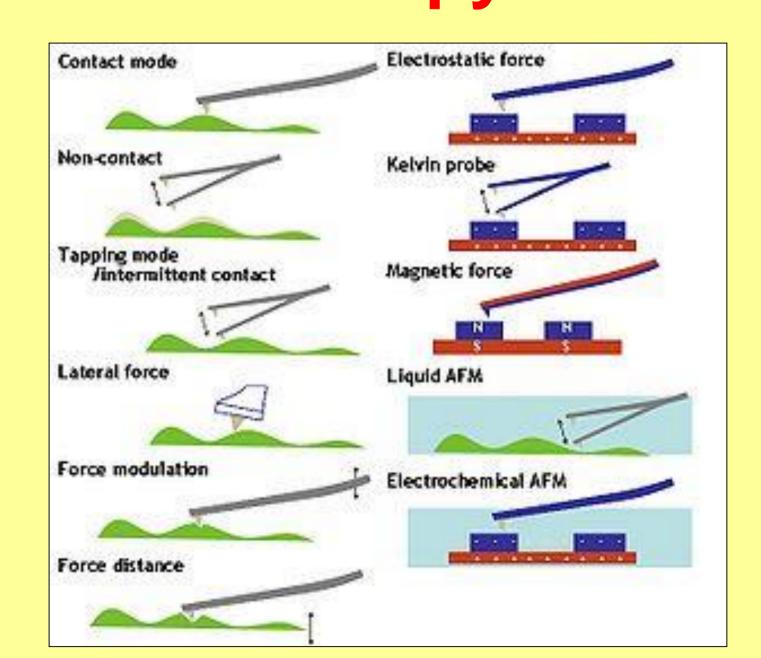




This system is used to study the optical response of a solar cell

# **Atomic force microscopy**





This system is used to study different properties of materials