

DBT - AIST International Laboratory for Advanced Biomedicine

DAILAB

Classroom for Advanced & Frontier Education CAFE

DAILAB-CAFE

Series - 62

Date & Time: April 27, 2021 (15:30- 16:30 JST)

Speaker : Dr. Ganesh Kumar Mani

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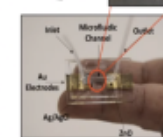
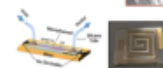
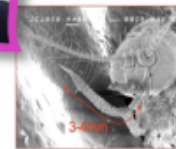


Wearable Sensor Technologies for Healthcare

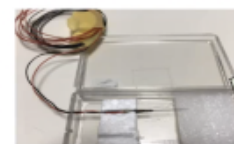
The first decade of the 21st century has been labelled as "Sensor Decade" due to tremendous advances have been made in sensor technology. In the current technological era, different types of sensors play a significant role and find an indispensable space in almost all the applications. Especially, there is great demand for *in vivo* testing to understand more about body metabolism to provide effective diagnosis and therapy. Currently no industrial technology available for single cell especially for pH, temperature or other cell metabolites. Compared to conventional sensors, research on single cell microneedle sensor is still in its infancy due to their difficulty in fabrication, poor flexibility, toxicity, scarcity of nanomaterials, instrumentation difficulty and poor stability. This talk will begin by presenting brief introduction about various chemical/bio sensors and their recent advancements. A few key experimental results about thin film type chemical sensors, ultrathin flexible nanosheet type sensors will be discussed. Various sensing parameters such as sensitivity and selectivity will be presented. All the observed figure of merits of the sensing elements with appropriate sensing mechanisms will be presented. In the end, the designing and development of microfluidics based solid state pH sensor will be touched upon.

Key Topics

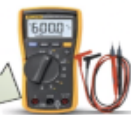
- ✓ Point of Care Devices
- ✓ Biomimicking
- ✓ Microneedle
- ✓ Sensor
 - Microneedle
 - Microfluidic Device
 - Mouthpiece
 - Electronic Skin



Summary

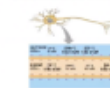


Single Microneedle



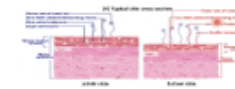
Multimeter

Neuron Membrane Potential



Alzheimer's disease
Parkinson's disease

Current Challenges...



- ✓ Pharmaceutical Industry for early drug discovery
- ✓ Easy integration with POC devices
- ✓ Can modify it for multiple analytes



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Kishore Banik	External
KRISHAN KUMAR THAKUR	External
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Harsha Choudhary	

THANK YOU FOR YOUR PARTICIPATION!