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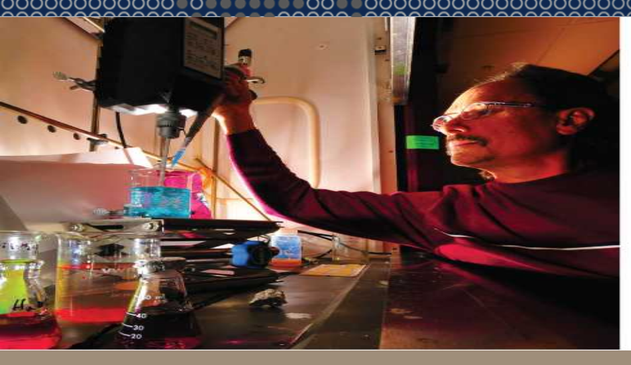


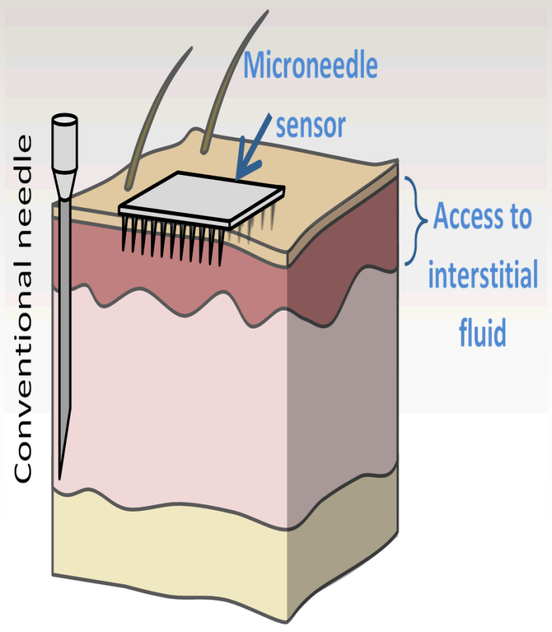

Hand-Held Microneedle-Based Diagnostic Device

Rhiana Rivas, Philip R Miller, Ronen Polsky
Sandia National Laboratories, P.O. Box 5800, Albuquerque, NM 87185

We have designed a hand-held electrolyte monitoring device that incorporates the use of the microneedle technology towards the detection of physiologically relevant analytes, in a mobile device. The purpose of this design is to enable a user-friendly diagnostic device that relies on pain-free interstitial fluid collection mechanisms and produces accurate and efficient results. Previous research has shown the capabilities of microneedle sensors, and their promise in medical diagnositc technology. The hand-held device is the next step in implementing this technology .

Why Microneedle Technology

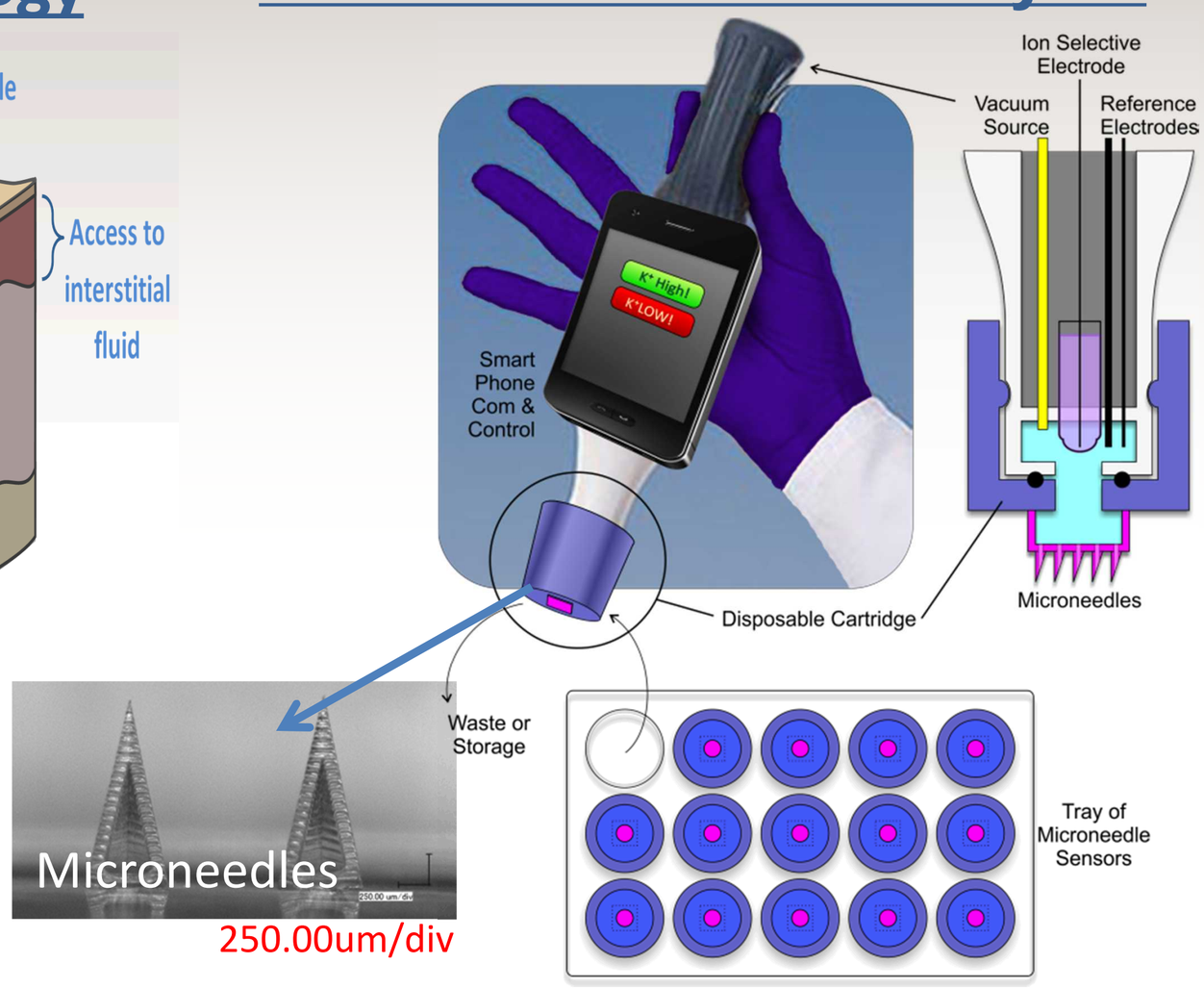
- Microneedles are painless due to their size, avoiding deeper layers of the dermis where higher concentrations of nerves exist.



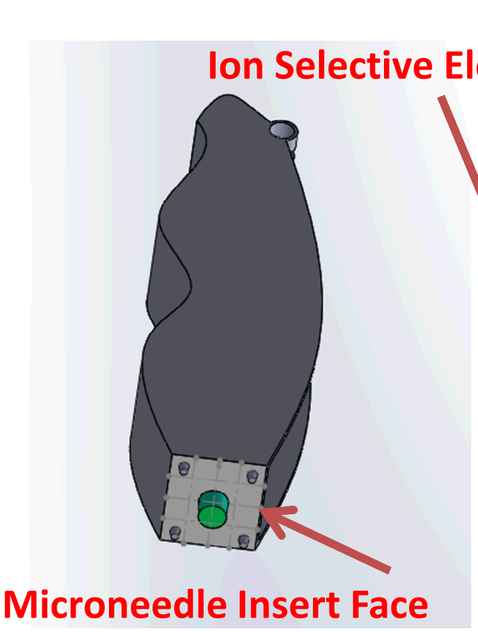
Applications

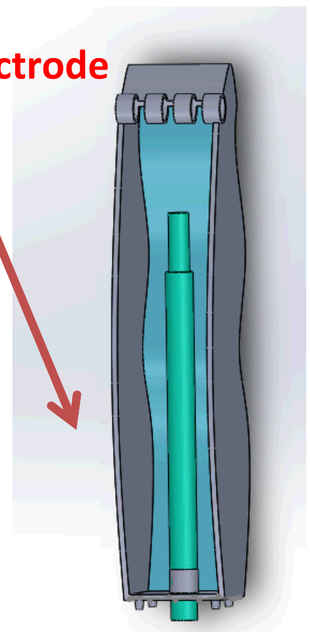
- Sports Medicine
- Infectious Disease
- Home Health Care
- Point of Care Diagnostics

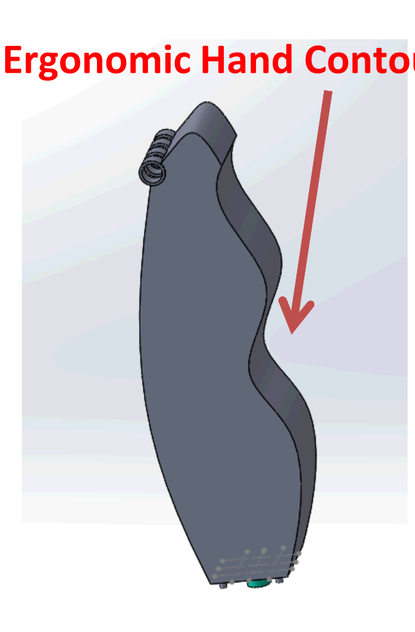
Handheld Medical Analyzer



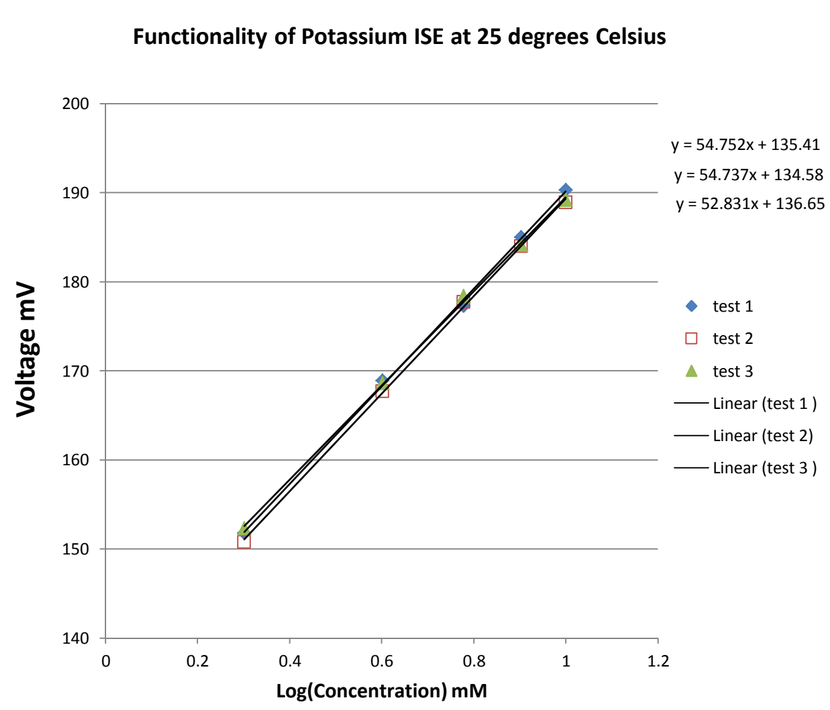
AutoCAD Designs







Bottom Cross Section Side



- **The ability to make real time measurements of an individuals physiology will make diagnosing and assessing medical conditions much easier and lead to a novel method for chem/bio defense and the ability to monitor human performance.**

U.S. DEPARTMENT OF ENERGY
National Nuclear Security Administration

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