Sustainable Point of Care Diagnostics for Human Health and Wellness

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This talk will explore the new realm of making sensors for point of care monitoring of human health and wellness. Issues of sustainability, equity and access is addressed by using low cost materials such as paper, threads and textiles as substrates to make these sensors. These materials offer unique advantages of universal availability, low cost, material diversity and simple ambient processing. They also provide an ideal platform for passive microfluidic sampling and analysis needed for point of care testing. Some examples to be discussed relevant to the theme of the workshop include (1) smart threads for monitoring electrolyte and metabolites in sweat capable of monitoring fatigue (2) Saliva diagnostics using sensing strips and dental floss for monitoring stress (3) Monitoring inflammatory cytokine level in biological fluid using an instrument-free assay. The talk will also provide a roadmap of the development for such sensors and their potential significance.