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Recent progress in development of remote body-water sensors

I concentrate my research and development in following fields (1) development of photocatalytic nanomembrane and other environmental friendly technologies; (2) Medical Physics and Biosensors, including remote sensors to measure water amount in blood plasma and remote sensors to measure anti-oxidant amount in blood plasma; (3) Development of 2D CCD membrane for human artificial vision and (4) Molecular Nanoelectronics (lasers, OLEDs, PVC, OFETs, etc.), and (5) 2D molecular semiconductors.

I will report on recent progress in development of remote hydration sensor, which offer a clear, unambiguous measurement of the amount of water in blood plasma: direct, contactless, easy, without any bulky computation. You can know your hydration level anytime, anyplace, while you are running or sitting in your office. We use a *differential photoelectric effect* to develop a new type of water sensor. We have developed a water sensor prototype, to prove the feasibility of this project, shown below in Figure 1.

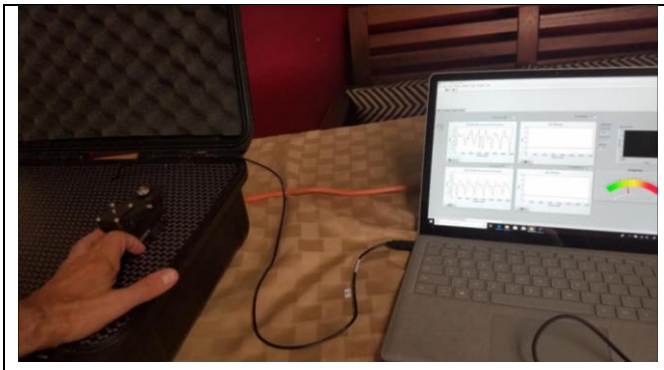

Figure 1: Hydration sensor prototype in operation mode. The left part is an electronic unit with a finger receptor on top. To the right is a notebook running a LabView program, which controls hydration measurement. A finger is inserted into finger-holder in the electronic unit on the left. The *snapshot* of hydration measurements is shown on the notebook screen to the right.

Our water sensor can be implemented in various configurations: watches, smartwatches, bracelets, wristbands, tape-on patch, etc.