Abstract Submitted
for the 4CS20 Meeting of
The American Physical Society

Alz-BioSs: A New, Small Blood Volume, Hand-Held Bio-Sensor for detecting Alzheimer's Biomarkers Levels using Colorimetry SRIVATSAN SWAMINATHAN, SHEFALI PRAKASH, ABBIE ELISON, MOHAMMED SAHAL, RILEY RANE, LAUREN PUGLISI, Alzheimer Bio-Sensors, LLC, ERIC CULBERTSON, Ronald Reagan UCLA Medical Center, ROBERT CULBERTSON, Arizona State University, Dept. of Physics, NICOLE HERBOTS, Alzheimer Bio-Sensors, LLC, ALZHEIMER BIO-SENSORS RESEARCH TEAM — Nearly 44 million worldwide suffer from Alzheimer's. Diagnosing Alzheimer's and monitoring progression is key to treatment. Recently, blood Methyl-GlyOxal (MGO) levels were found to increase when patients develop Mild Cognitive Impairment (MCI) and Alzheimer's. Presently, no portable device measuring MGO exists. This work has designed a fast, accurate, hand-held colorimetric biosensor - akin to glucometers - called Alz-Bio-Ss^{TM}[1]. The Alz-BioSs$^{\mathrm{TM}}$ device consists of three components. First, a disposable collection micro-fluidic strip separates plasma from a drop of blood. Second, plasma MGO reacts with two reagents, o-phenylene-diamine and citrate-capped gold nanoparticles. Third, a handheld colorimeter detects and quantifies MGO concentrations via photo-absorption from 500-700 nm LED emission and photodiodes. Alz-Bio-Ss^{TM}can diagnose AD quickly and cheaply, unlike current methods such as cerebrospinal fluid analysis and brain imaging methods. It can diagnose MCI, not just Alzheimer's, allowing for early intervention to slow and possibly halt disease progression into full-fledged Alzheimer's. [1] Swaminathan, Herbots et al. Inter. & US Pat. Pend. (2020)

Srivatsan Swaminathan
Alzheimer Bio-Sensors, LLC

Date submitted: 15 Oct 2020 Electronic form version 1.4