

Abstract Submitted
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A Ringdown Breath Analyzer for Diabetes Monitoring: Breath Acetone in Diabetic Patients. CHUJI WANG, Dept. of Phys, and the ICET, Mississippi State University, Starkville, MS 39759, cw175@msstate.edu, ARMSTRONG MBI, Dept. of Phys, and the ICET, Mississippi State University, Starkville, MS 39759, MARK SHEPHERD, Endocrinology Consultants Center, 670 Crossover Rd. Tupelo, MS, 38801 — It is highly desirable for millions of diabetic patients to have a non-blood, non-invasive, point-of-care device for monitoring daily blood glucose (BG) levels and the adequacy of diabetic treatment and control. Cavity ringdown spectroscopy, due to its unique capability of high sensitivity, fast-response, and relatively low cost for instrumentation, has the potential for medical application through non-invasive analysis of breath biomarkers. We report the first ringdown acetone breath analyzer for clinic testing with diabetic outpatients. The instrument was set in a clinic center and 34 outpatients (24 T1D and 10 T2D) were tested during a four-day period. 10 T1D subjects and 15 nondiabetic persons were tested in our laboratory. Three juvenile-onset T1D subjects were selected for a 24-hr monitoring on the variations of breath acetone and simultaneous BG level. In this talk, we present our research findings including the correlations of breath acetone with BG level and A1C.

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