

Abstract Submitted  
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**Progress towards a new microwave measurement of the hydrogen n=2 Lamb shift: a measurement of the proton charge radius<sup>1</sup>** A.C. VUTHA, N. BEZGINOV, I. FERCHICHI, M.C. GEORGE, V. ISAAC, C.H. STORRY, A.S. WEATHERBEE, M. WEEL, E.A. HESSELS, York University — We propose to make a more precise measurement of the atomic hydrogen n=2 Lamb shift using the Ramsey method of separated oscillatory fields. This new measurement (with an anticipated uncertainty of 2 kHz – 5 times more accurate than the 1981 measurement of Lundeen and Pipkin), along with existing precise atomic theory calculations, will allow for a new determination of the proton charge radius to an accuracy of 0.6 percent. The measurement will shed light on the  $5\sigma$  discrepancy between proton radius recently obtained from muonic hydrogen [Pohl, et al, Nature 466, 213 (2010)] and the CODATA value.

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