

Voltammetric pH Sensor Based on Electrochemically Modified Pseudo-Graphite

Haoyu Zhu^a, Tanim Hassan^a, Humayun Kabir^a, Jeremy May^a, Kailash Hamal ^a, Ricardo Lopez^a,
Hailey J. Smith^a, Nolan W. Nicholas^b, Prasanna Sankaran^c, David N. McIlroy^d, I. Francis Cheng^{a,*}

^aUniversity of Idaho, Department of Chemistry, 875 Perimeter Dr., MS 2343, Moscow, ID, 83844,
USA

^bABB Inc. – USCRC, 131 Phoenix Crossing, Bloomfield, CT, 06002, USA

^cUniversity of Idaho, Department of Physics, 875 Perimeter Dr., Moscow, ID, 83844, USA

^dOklahoma State University, Department of Physics, 145 Physical Sciences Building, Stillwater,
OK, 74028, USA

*Tel: (208) 885-6387, Email: ifcheng@uidaho.edu

S1. Stability test at pH of 9 and 10

As shown in Figure S1, continuous square wave voltammetry (SWV) scanning between 0.8V to -0.7 V with q-GUITAR in pH 9 buffer is very stable for 20 cycles. In pH 10 buffer, however, the q-GUITAR electrode experienced a peak shifting and current degradation after 12th cycle.

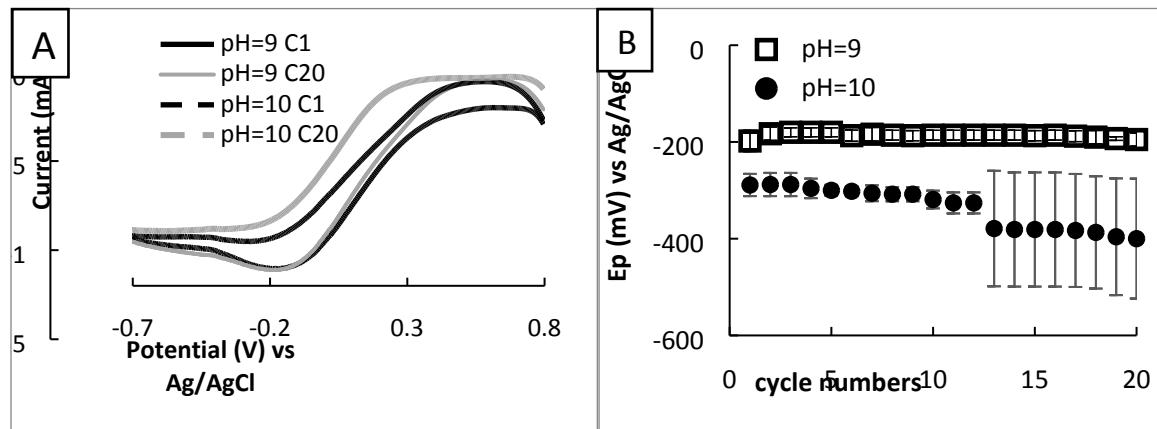


Figure. S1. A. The first and 20th SWV of q-GUITAR in buffered solution with pH = 9 and 10 in potential range of 0.8 V to - 0.7 V. B. The peak potential in buffer with pH = 9 and 10 (n = 4) for 20 continuous SWV scanning.