S u p p l e m e n t a r y i n f o r m a t i o n

Improved catalyst for hydrogen evolution reaction in alkaline solutions through the electrochemical formation of nickel-reduced graphene oxide interface

Sanjin J. Gutić[1], Ana S. Dobrota[2], Mikael Leetmaa[3], Natalia V. Skorodumova[3,4], Slavko V. Mentus,[2,5] Igor A. Pašti[2]*

[1]*Department of Chemistry, Faculty of Science, Zmaja od Bosne 33-35, 71000 Sarajevo, Bosnia and Herzegovina*

[2]*University of Belgrade, Faculty of Physical Chemistry, Studentski trg 12-16, 11158 Belgrade, Serbia*

[3]*Department of Materials Science and Engineering, KTH - Royal Institute of Technology, Brinellvägen 23, 100 44 Stockholm, Sweden*

[4]*Department of Physics and Astronomy, Uppsala University, Box 516, 751 20 Uppsala, Sweden*

[5]*Serbian Academy of Sciences and Arts, Knez Mihajlova 35, 11000 Belgrade, Serbia*

***Corresponding author:**

Dr. Igor A. Pašti, associate professor

University of Belgrade – Faculty of Physical Chemistry

Studentski trg 12-16, 11158 Belgrade, Serbia

E-mail: igor@ffh.bg.ac.rs

Phone: +381 11 3336 628

Fax: +381 11 2187 133

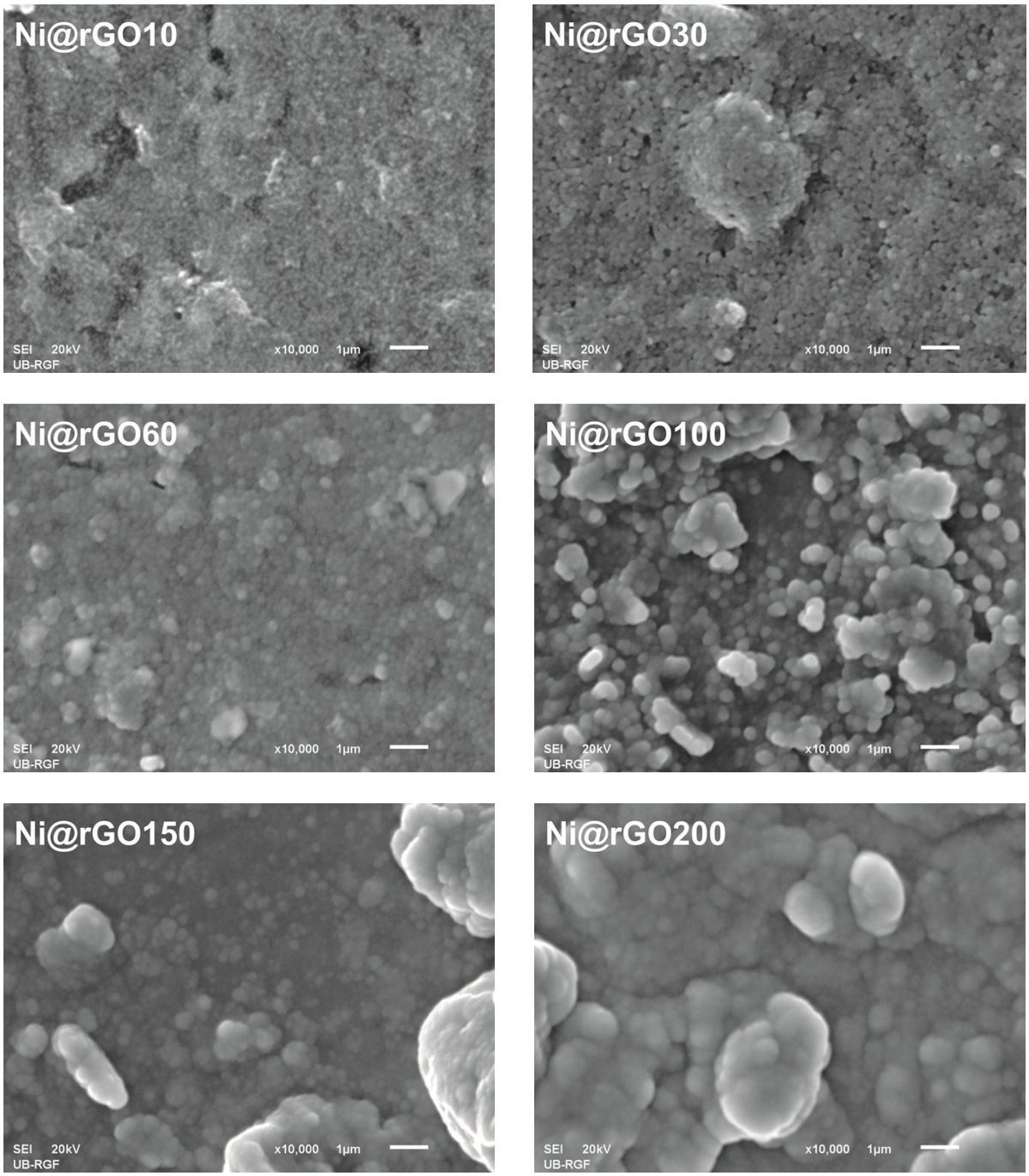

Figure S1. SEM micrographs of Ni@rGO composites obtained at constant potential (shown in reduced scale in the Fig. 3 in the main text)

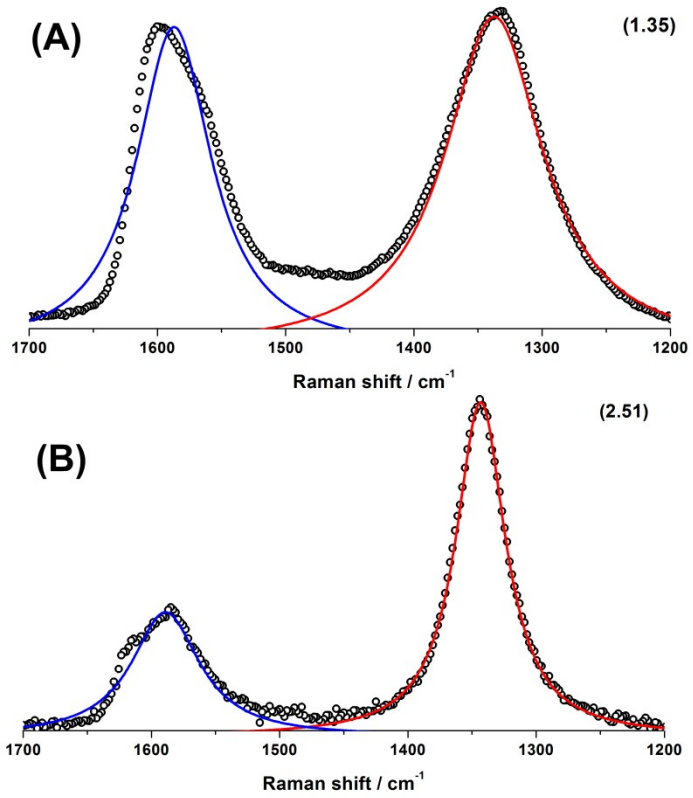

Figure S2. Raman spectra of drop-casted GO (A) and rGO obtained at −1.2 V *vs*. Ag/AgCl (B, the same potential used for the preparation of the composite electrodes) in the solution of Na_2SO_4 without nickel salt. Numbers in parentheses indicate I_D/I_G ratio.

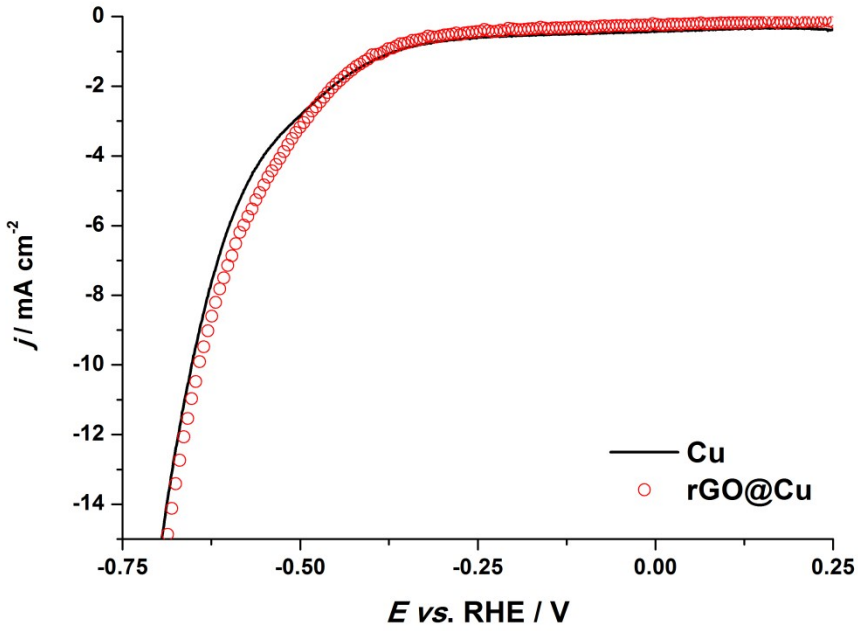

Figure S3. Pseudostationary voltammograms for HER in 1 M KOH at clean Cu surface and rGO@Cu surface. The rGO@Cu electrode was prepared by potentiostatic reduction of GO at −1.2 V *vs*. Ag/AgCl in Na_2SO_4, in the absence of nickel salt.