

Supporting information

Biomolecular interactions and biological responses of emerging two-dimensional materials and aromatic amino acid complexes

Sai Sunil Kumar Mallineni¹, Jonathan Shannahan², Achyut J. Raghavendra^{1, 3}, Apparao M.

*Rao¹, Jared M. Brown², and Ramakrishna Podila^{1,3 *}*

1. Clemson Nanomaterials Center, Department of Physics and Astronomy, Clemson University,
Clemson, SC USA 29634.

2. Department of Pharmaceutical Sciences, Skaggs School of Pharmacy and Pharmaceutical
Sciences, The University of Colorado Anschutz Medical Campus, Aurora, CO 80045, USA.

3. Laboratory of Nano-biophysics and COMSET, Clemson University, Clemson, SC USA
29634.

*Corresponding author: rpodila@g.clemson.edu, Phone: 864-656-4447, Fax: 864-656-0805.

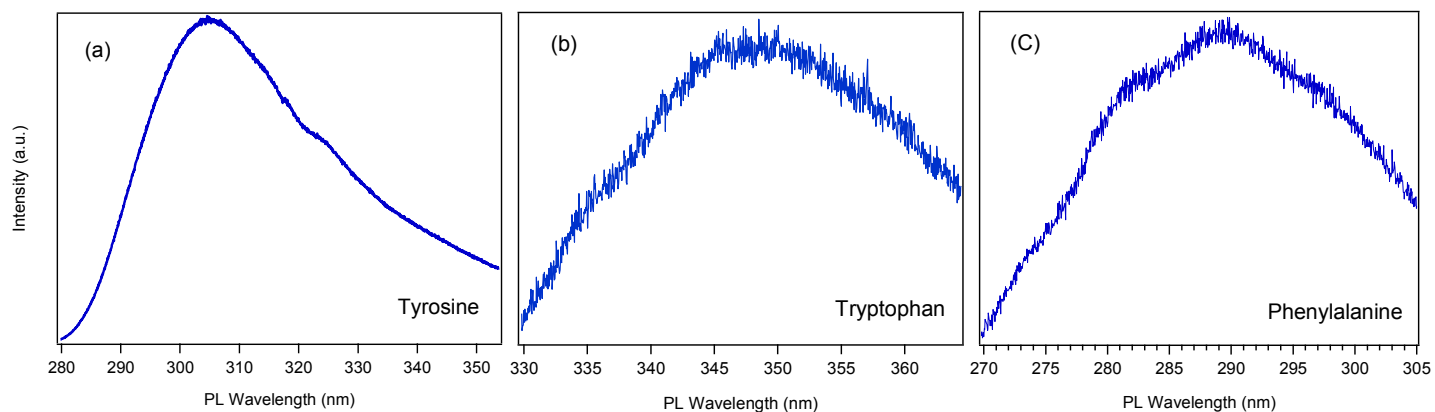


Figure S1. Photoluminescence spectra of Tyrosine (a), Tryptophan (b), and Phenylalanine (c).

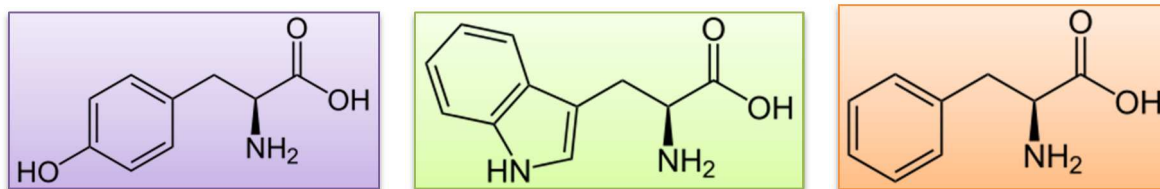


Figure S2. Structure of Tyrosine (blue), Tryptophan (green), and Phenylalanine (orange)

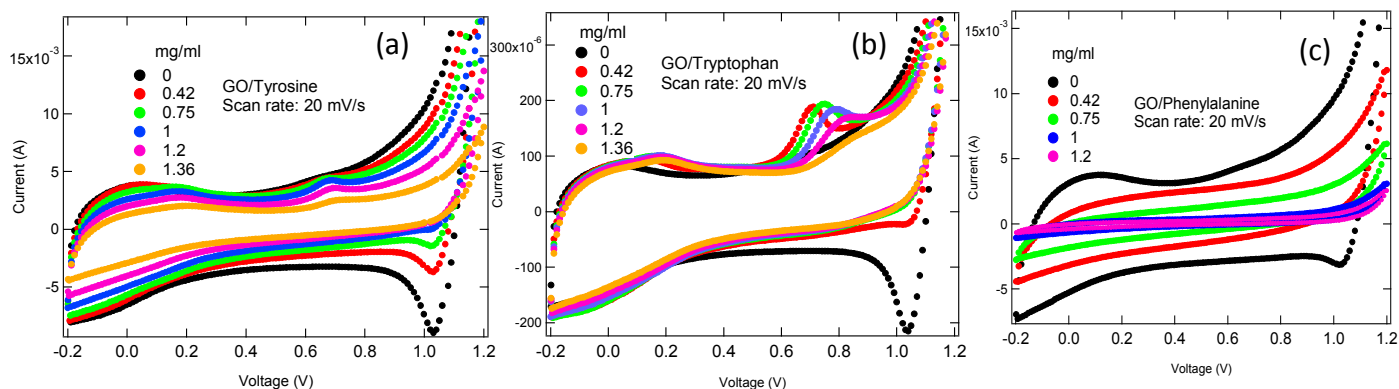


Figure S3. Cyclic Voltammetry (CV) curves of (a) tyrosine, (b) tryptophan, (c) phenylalanine in PBS 0.05M buffer solution with graphene oxide (GO) as working electrode. All CV curves plotted were normalized with a scan rate of 20 mV/s.

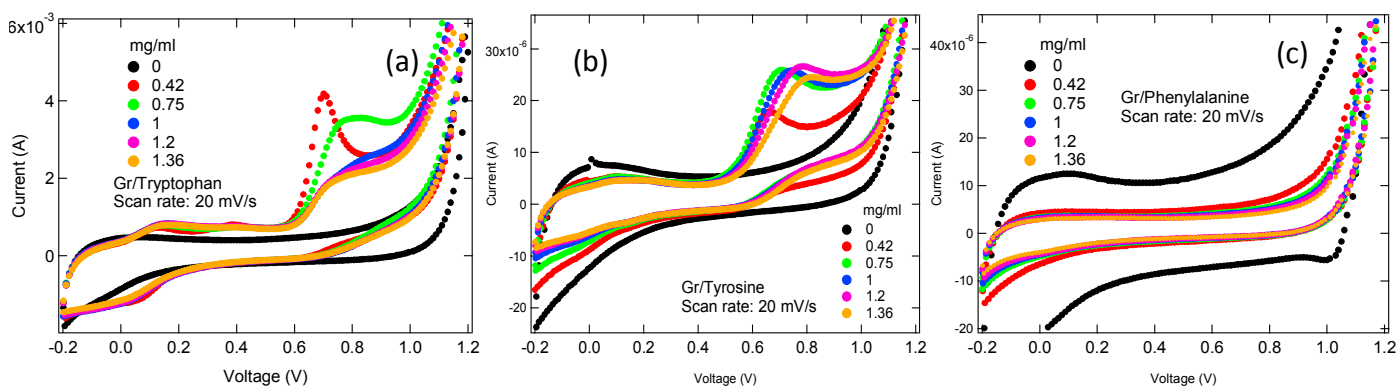


Figure S4. Cyclic Voltammetry (CV) curves of (a) tyrosine, (b) tryptophan, (c) phenylalanine in PBS 0.05M buffer solution with graphene (Gr) as working electrode. All CV curves plotted were normalized with a scan rate of 20 mV/s.

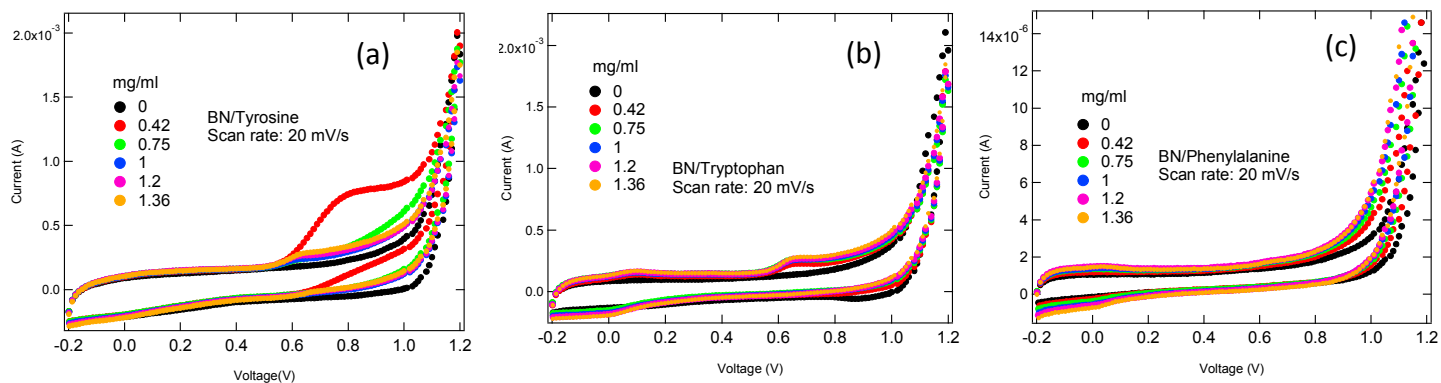


Figure S5. Cyclic Voltammetry (CV) curves of (a) tyrosine, (b) tryptophan, (c) phenylalanine in PBS 0.05M buffer solution with boron nitride (BN) as working electrode. All CV curves plotted were normalized with a scan rate of 20 mV/s.

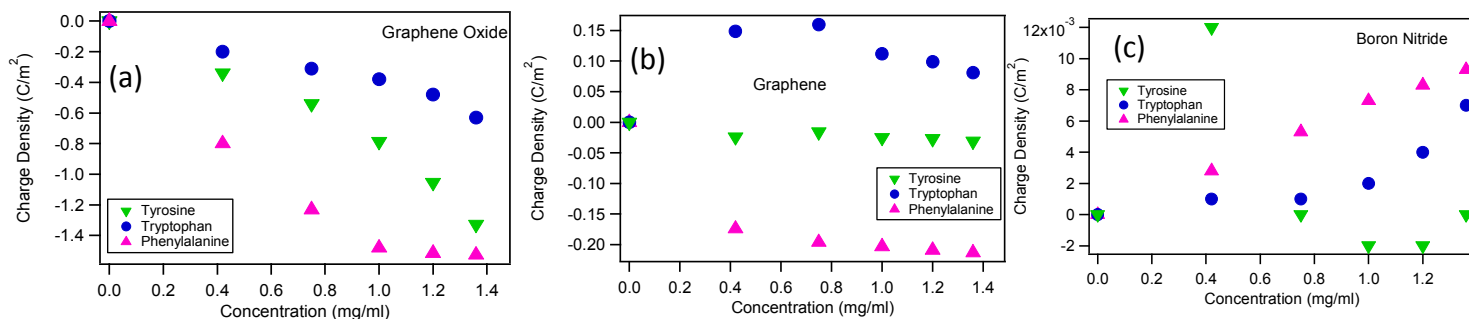


Figure S6. Charge density isotherms for 2D materials with different amino acids. It should be noted that these isotherms are same as the plots shown in Fig. 4 but grouped by the type of material instead of amino acid.

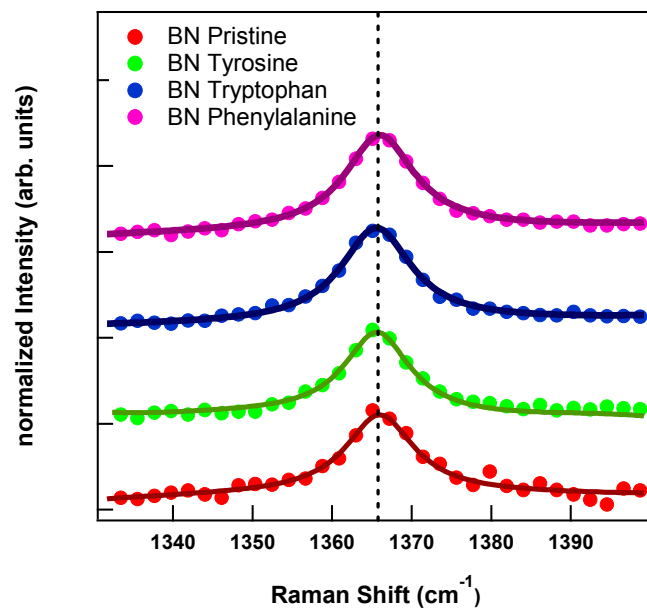


Figure S7. Raman spectra of boron nitride (BN) adsorbed with different amino acids.