

Electronic Supplementary Information

Effect of Boron-Nitrogen Bonding on Oxygen Reduction Reaction
Activity of BN Co-doped Activated Porous Carbons

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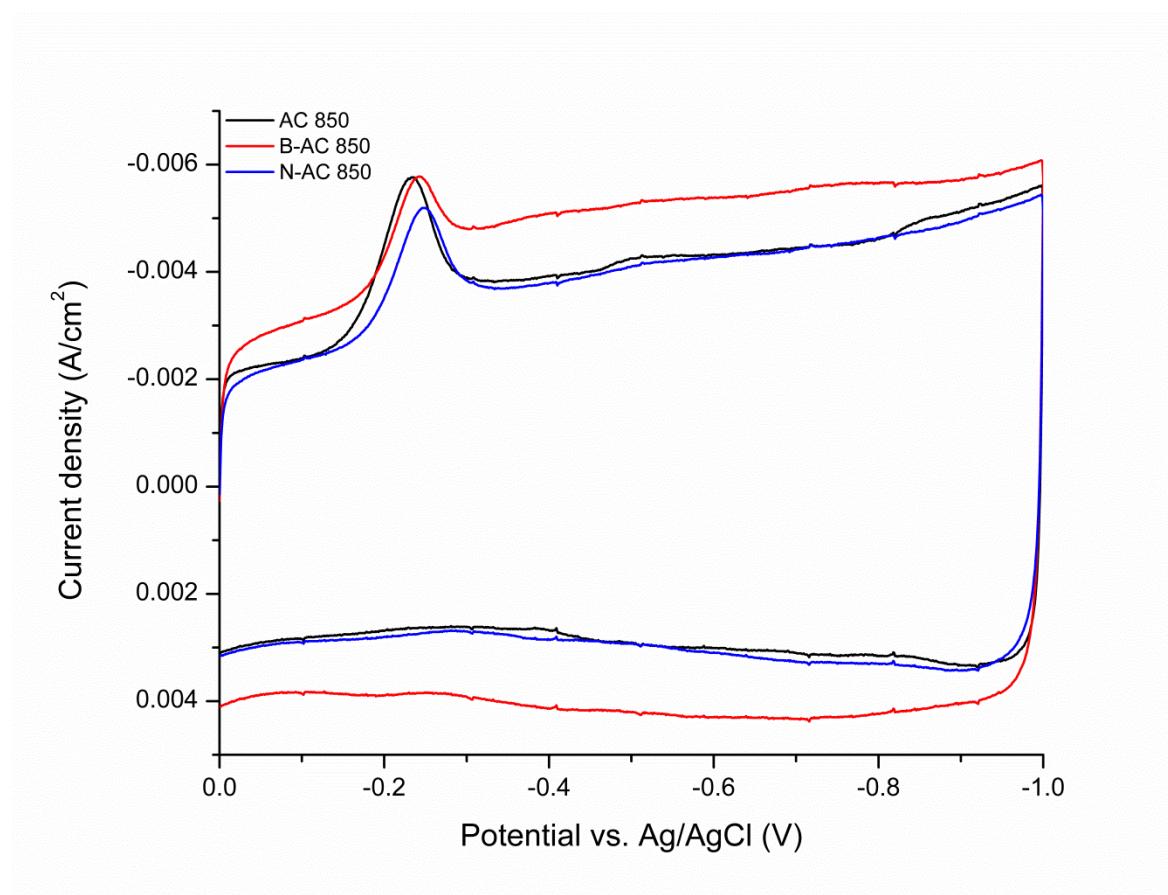


Figure S1. CV measurements for samples synthesized at 850 °C

Table S1. Atomic% for samples pyrolyzed at 700 and 850 °C measured from XPS survey

| Atom | B-AC 700 | B-AC 850 | N-AC 700 | N-AC 850 |
|------|----------|----------|----------|----------|
| C | 95.45 | 96.18 | 94.74 | 97.13 |
| O | 4.55 | 3.82 | 5.26 | 2.87 |

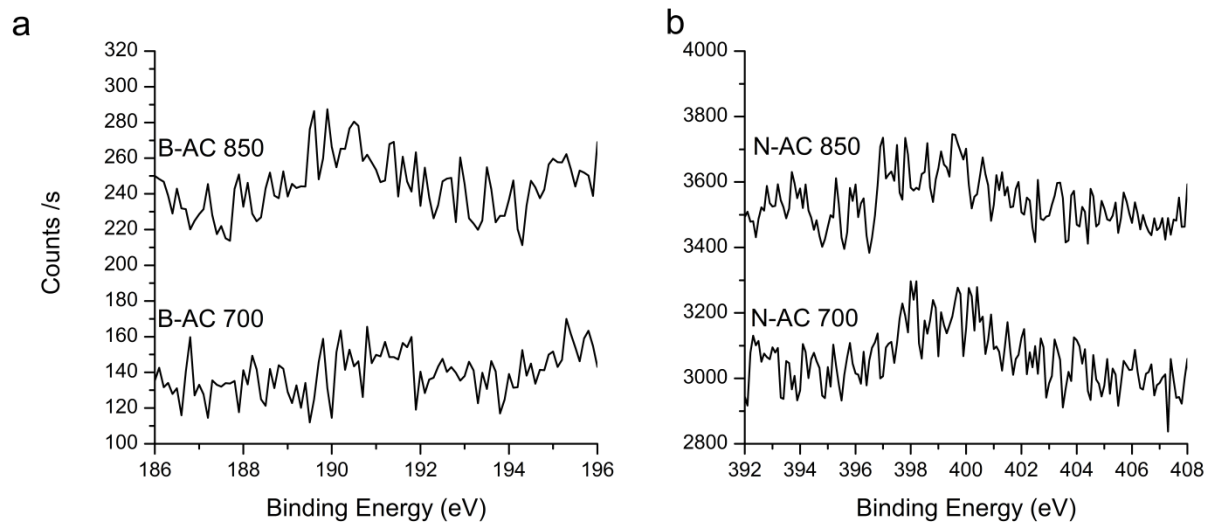


Figure S2. (a) XPS B1s scan and (b) XPS N1s scan for samples pyrolyzed at 700 and 850 °C

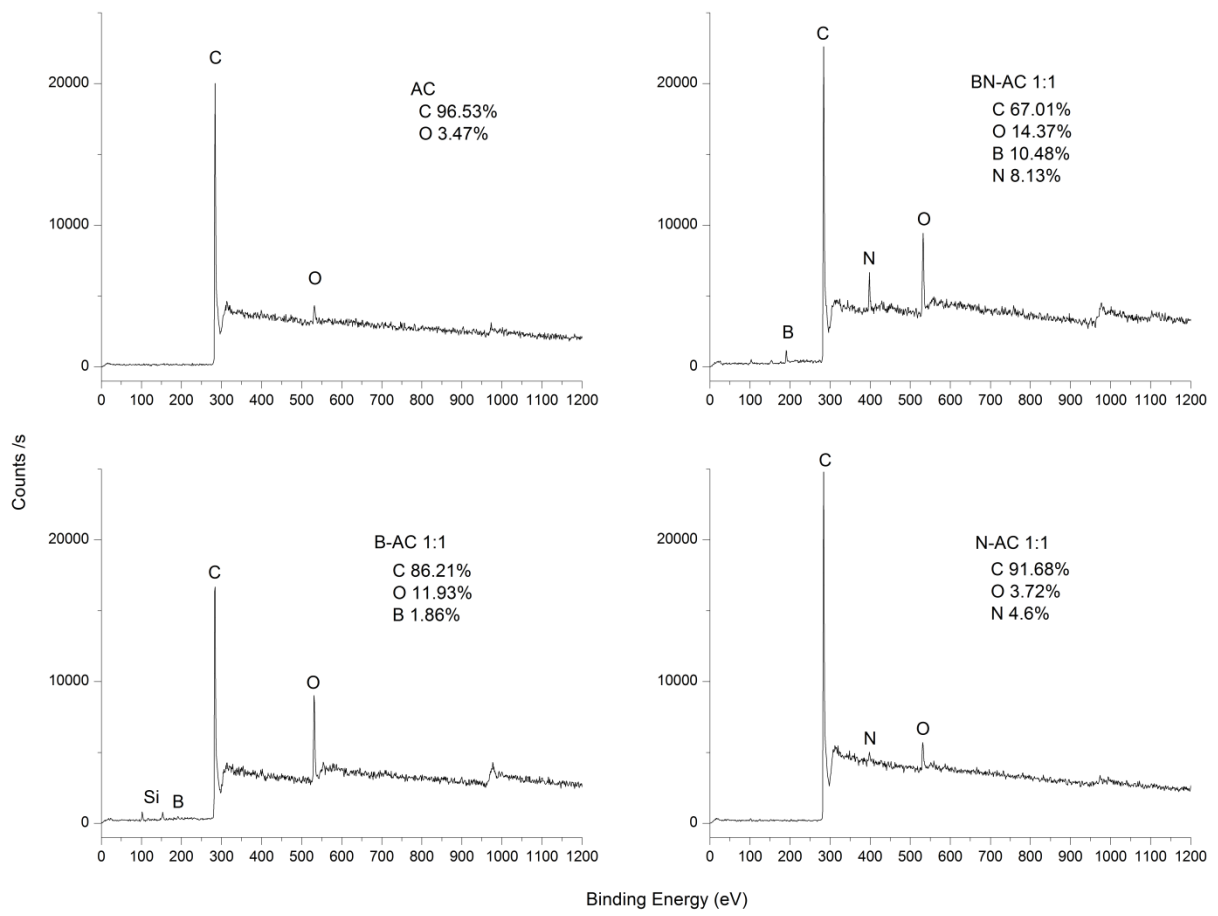


Figure S3. XPS survey results of AC, BN-AC 1:1, B-AC 1:1, and N-AC 1:1 annealed at 1000°C

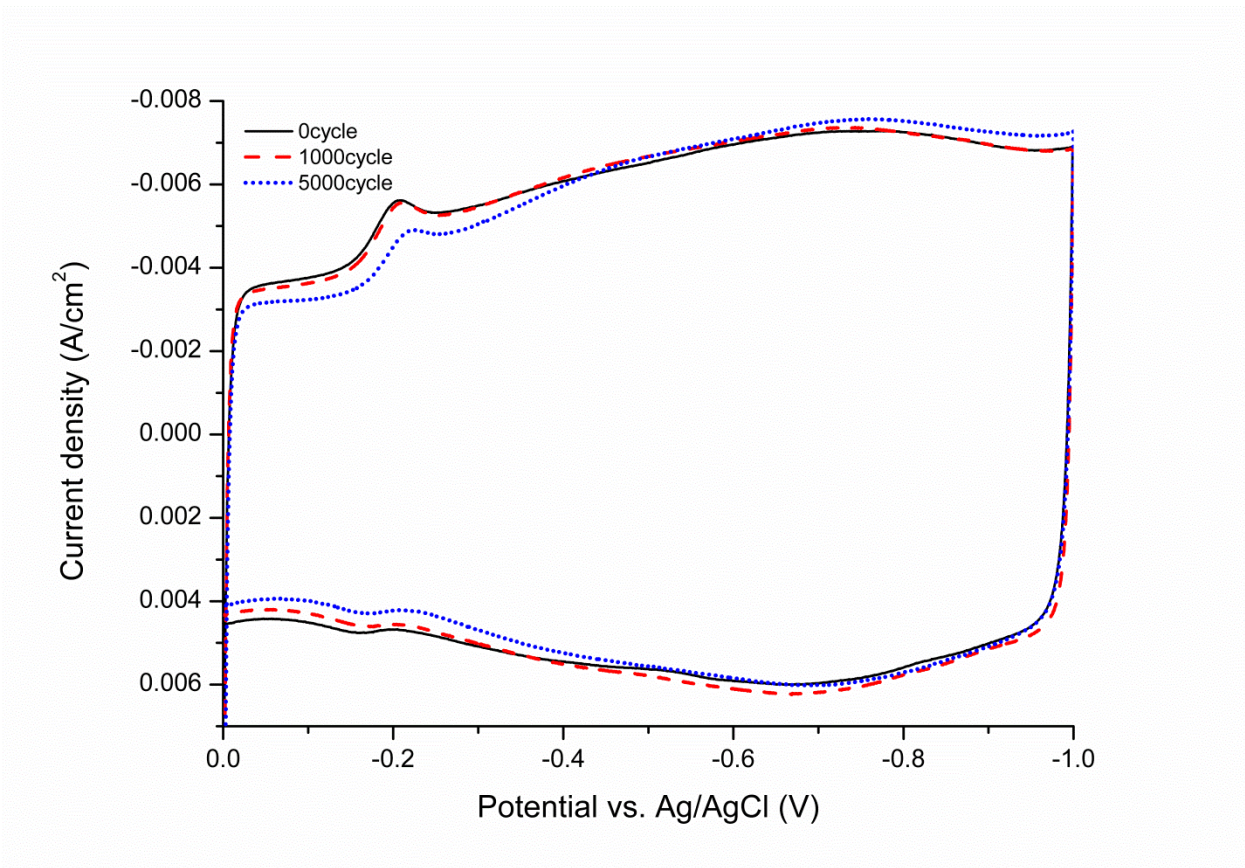


Figure S4. CV measurements of BN-AC 1:1 after 1000 and 5000 cycles at a scan rate 50 mV/s

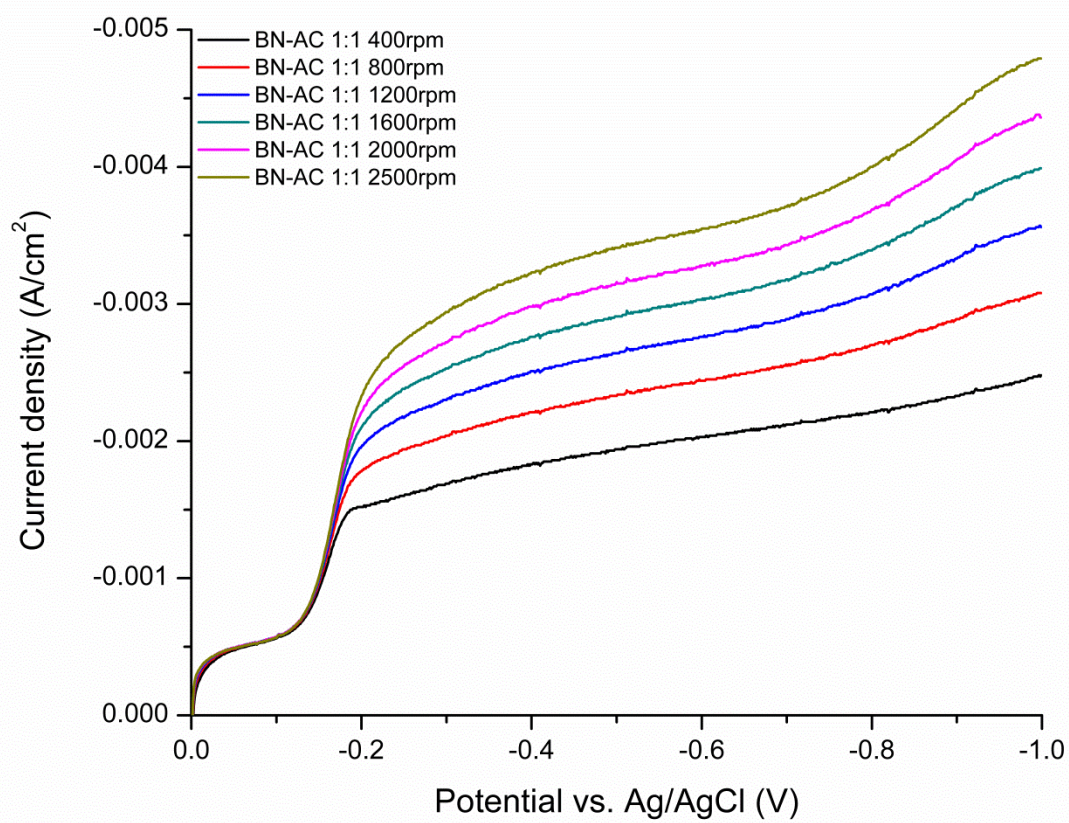


Figure S5. RDE measurements for BN-AC 1:1 at different rotating rates

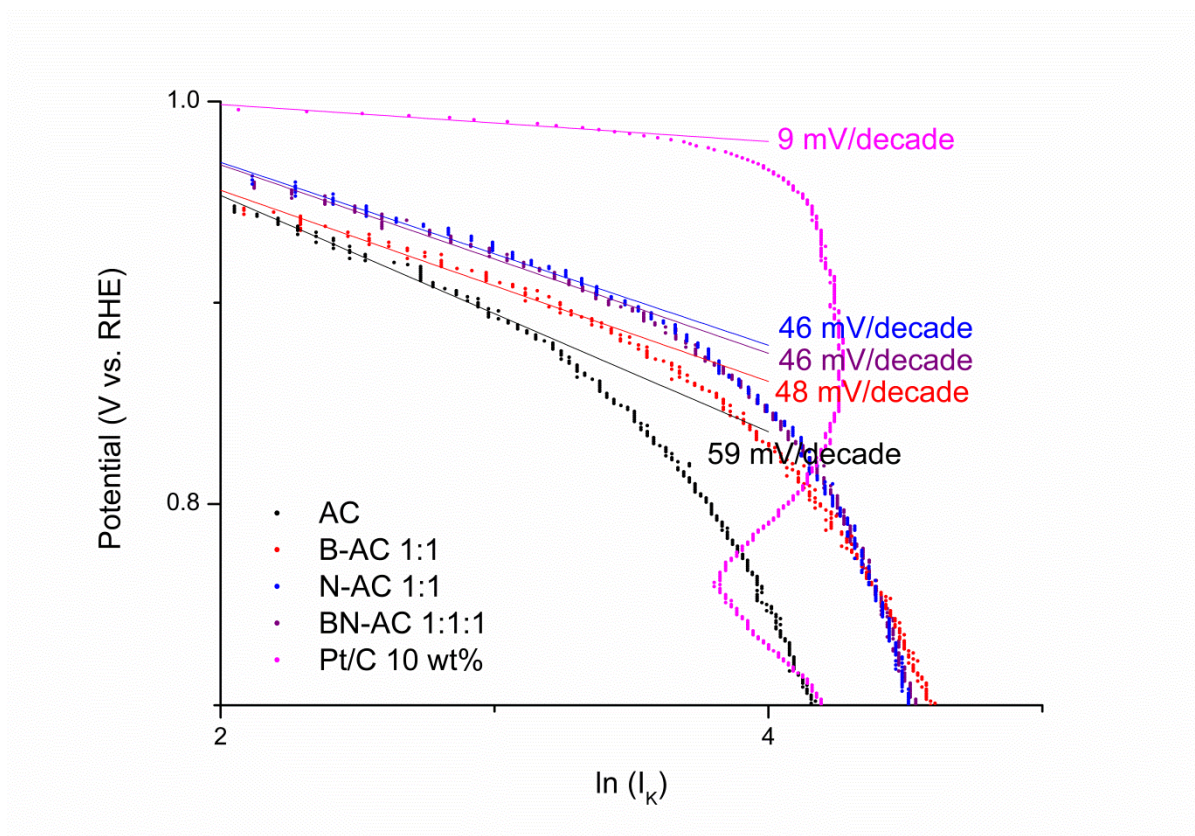


Figure S6. Tafel plots (Potential vs. logarithmic current density) and calculated slopes using RDE data for AC, B-AC 1:1, N-AC 1:1, BN-AC 1:1, and Pt/C 10 wt% samples

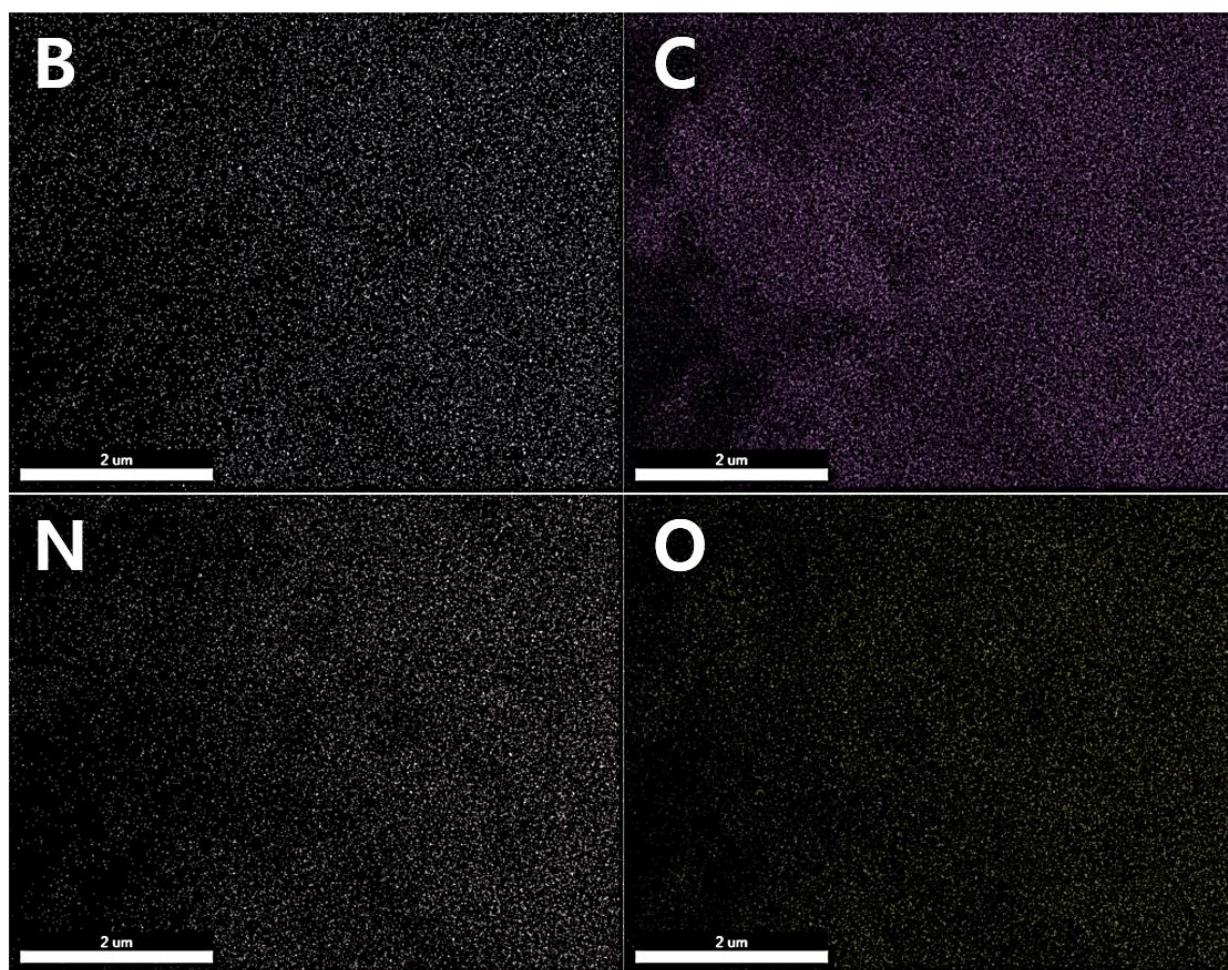


Figure S7. Elemental mapping of B, C, N, and O in SEM images using EDAX.

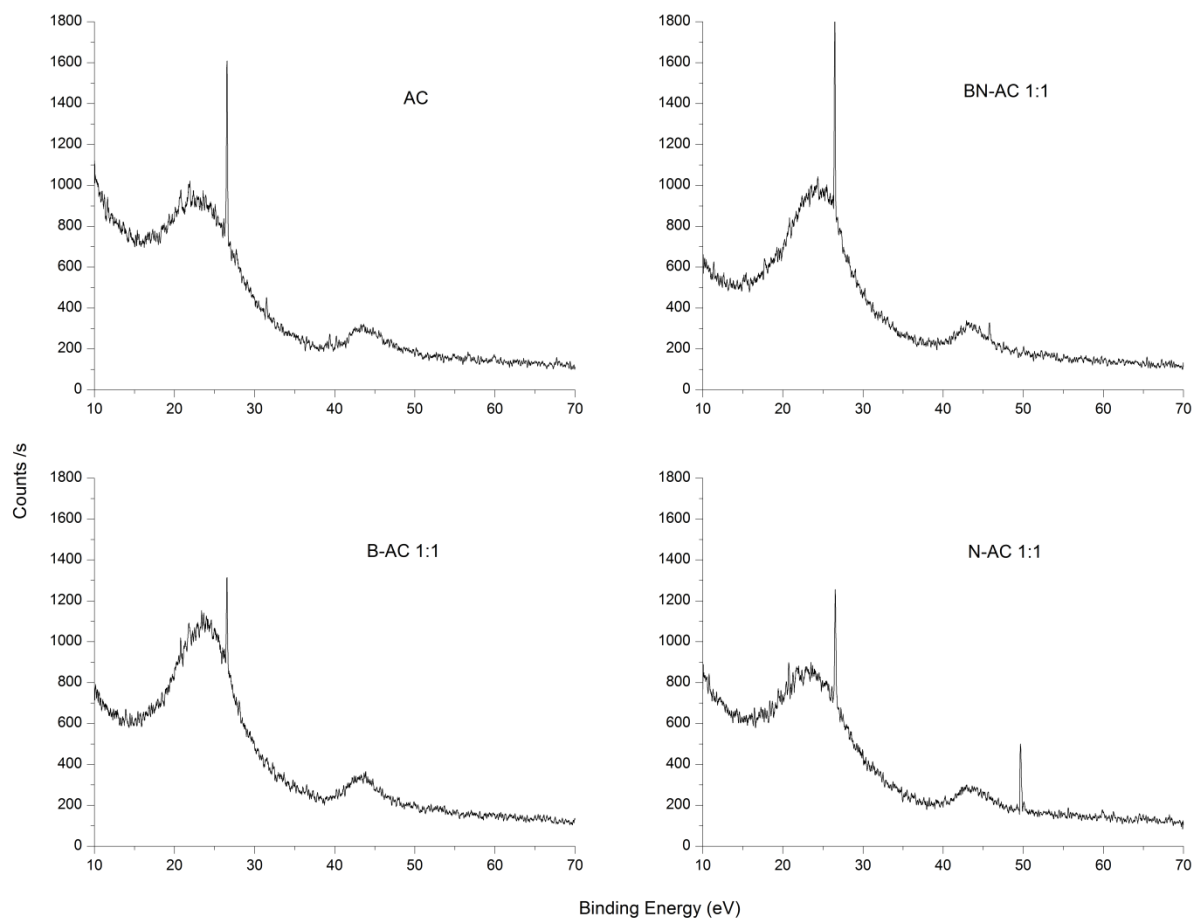


Figure S8. XRD results for AC, BN-AC 1:1, B-AC 1:1, and N-AC 1:1

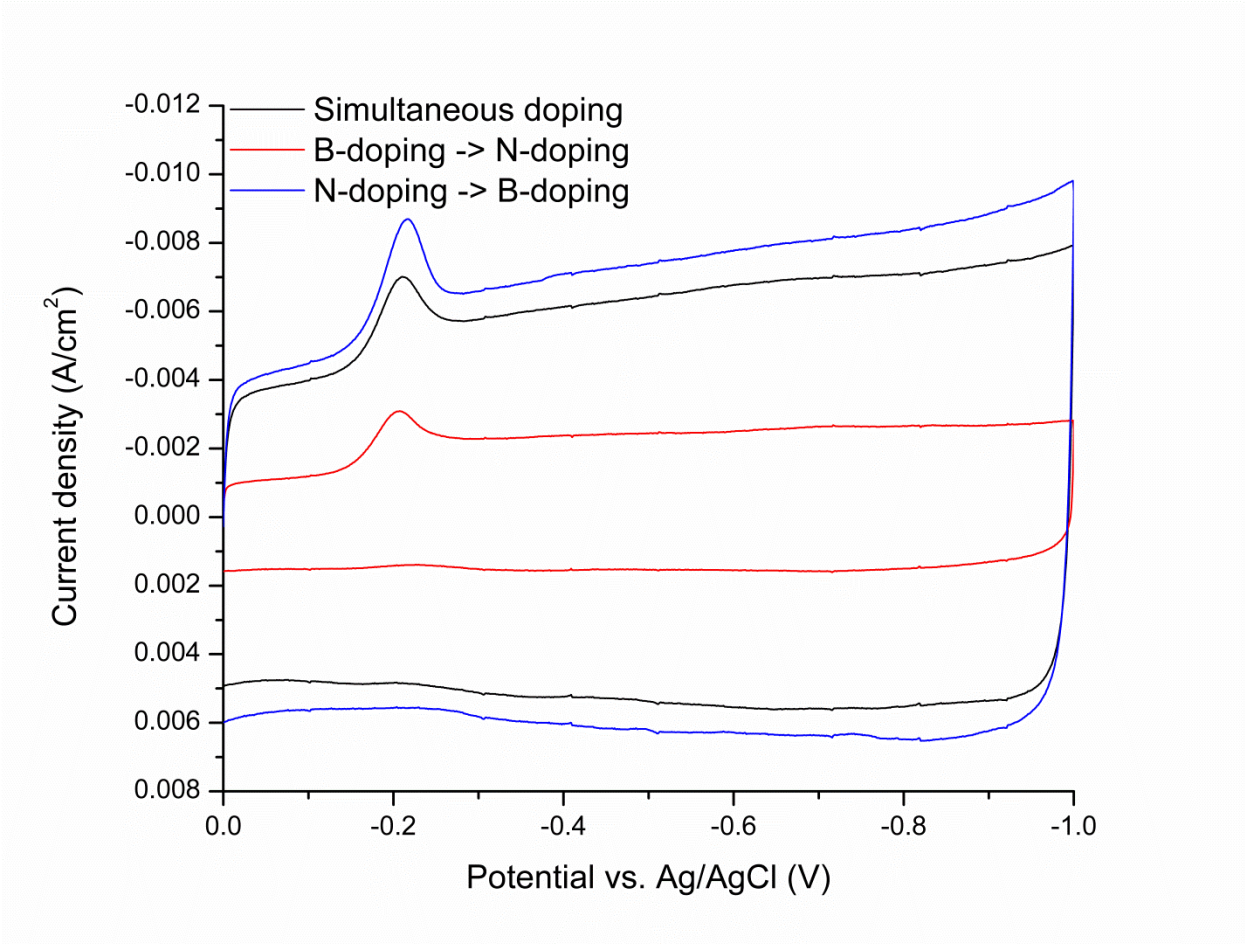


Figure S9. CV measurements for BN-AC 10:1 synthesized by simultaneous or two-step doping method

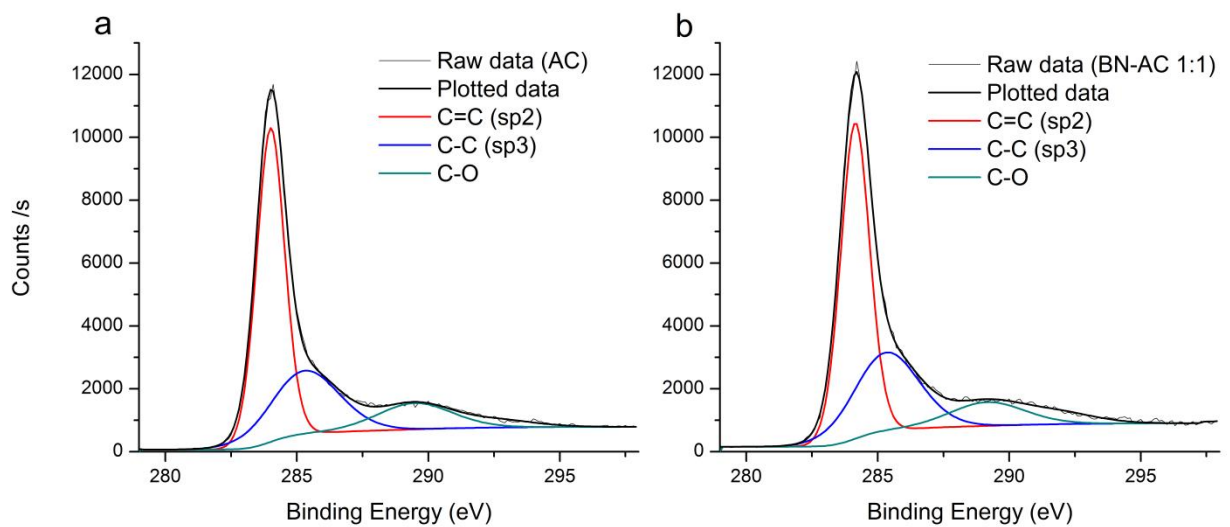


Figure S10. XPS C1s scan of (a) AC sample (b) BN-AC 1:1 sample