

Electrochemical performance of graphene-modulated sulfur composite cathodes using LiBH₄ electrolyte for all-solid-state Li-S battery

Tarun Patodia^{1,2,3}, Mukesh Kumar Gupta⁴, Rini Singh⁵, Takayuki Ichikawa⁵, Ankur Jain^{1,2,6*} and Balram Tripathi^{7*}

¹Natural Science Centre for Basic Research and Development, Hiroshima University, 739-8530, Japan

²School of Applied Science, Suresh Gyan Vihar University, Jaipur-302017, India

³Department of Physics, S. S. Jain Subodh College of Global Excellence, Jaipur-302022, India

⁴Department of Electrical Engineering, Suresh Gyan Vihar University, Jaipur-302017, India

⁵Graduate School of Engineering, Hiroshima University, 739-8527, Japan

⁶Centre for Renewable Energy & Storage, Suresh Gyan Vihar University, Jaipur-302017, India

⁷Department of Physics, S. S. Jain Subodh P.G. (Autonomous) College, Jaipur-302004, India

* Correspondence: ankur.j.ankur@gmail.com (A.J.); balramtripathi1181@gmail.com (B.T.)

SUPPORTING INFORMATION

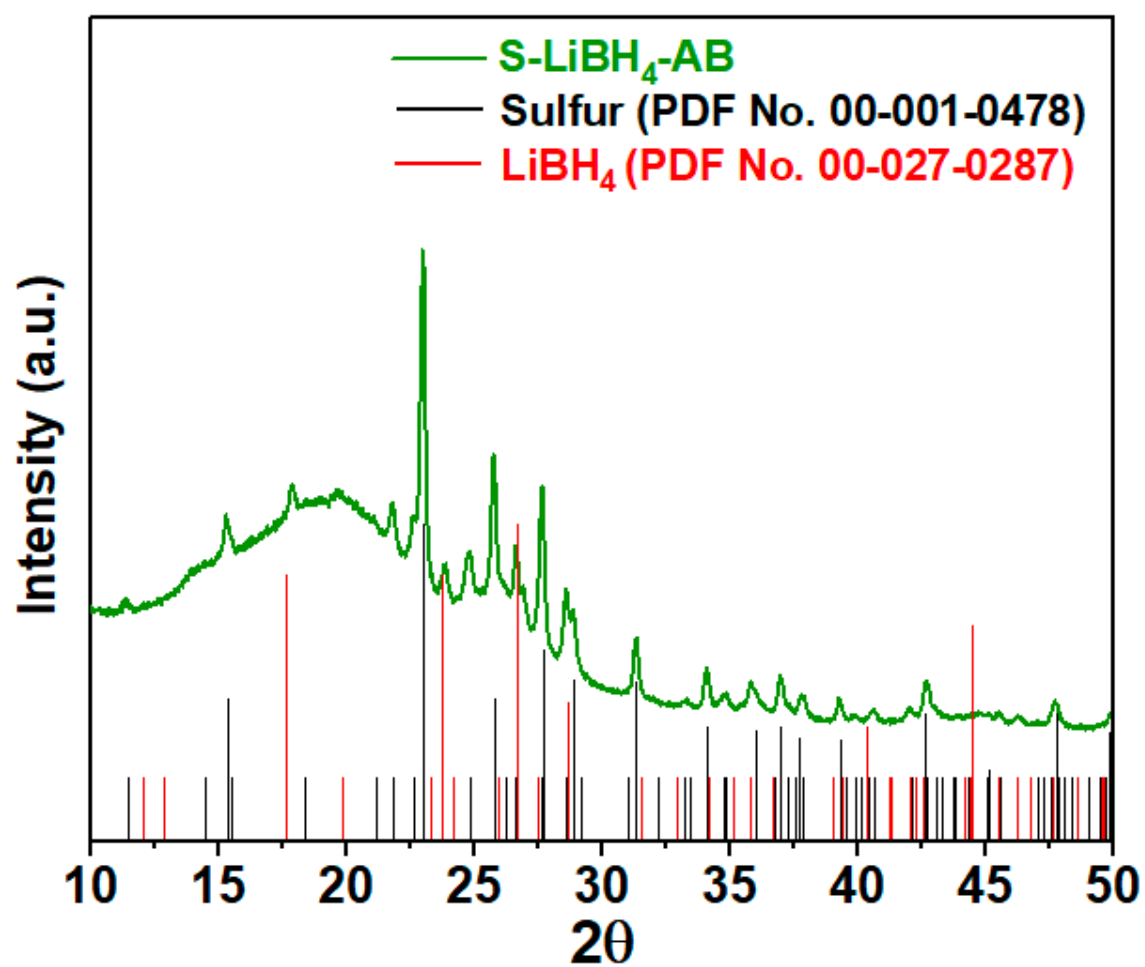


Figure S1. XRD plot of the as-prepared S-LiBH₄-AB composite electrode.

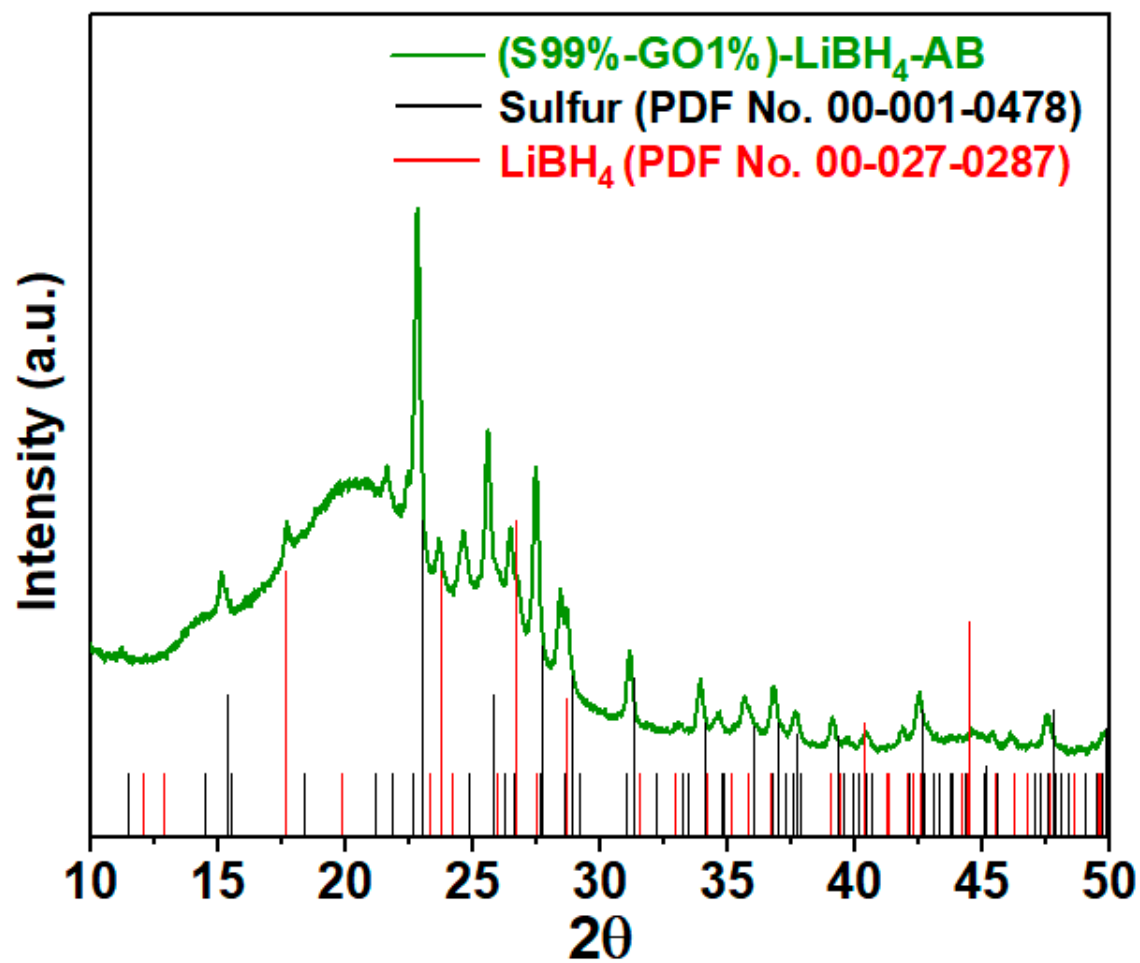


Figure S2. XRD plot of the (S99%-GO1%)-LiBH₄-AB composite electrode.

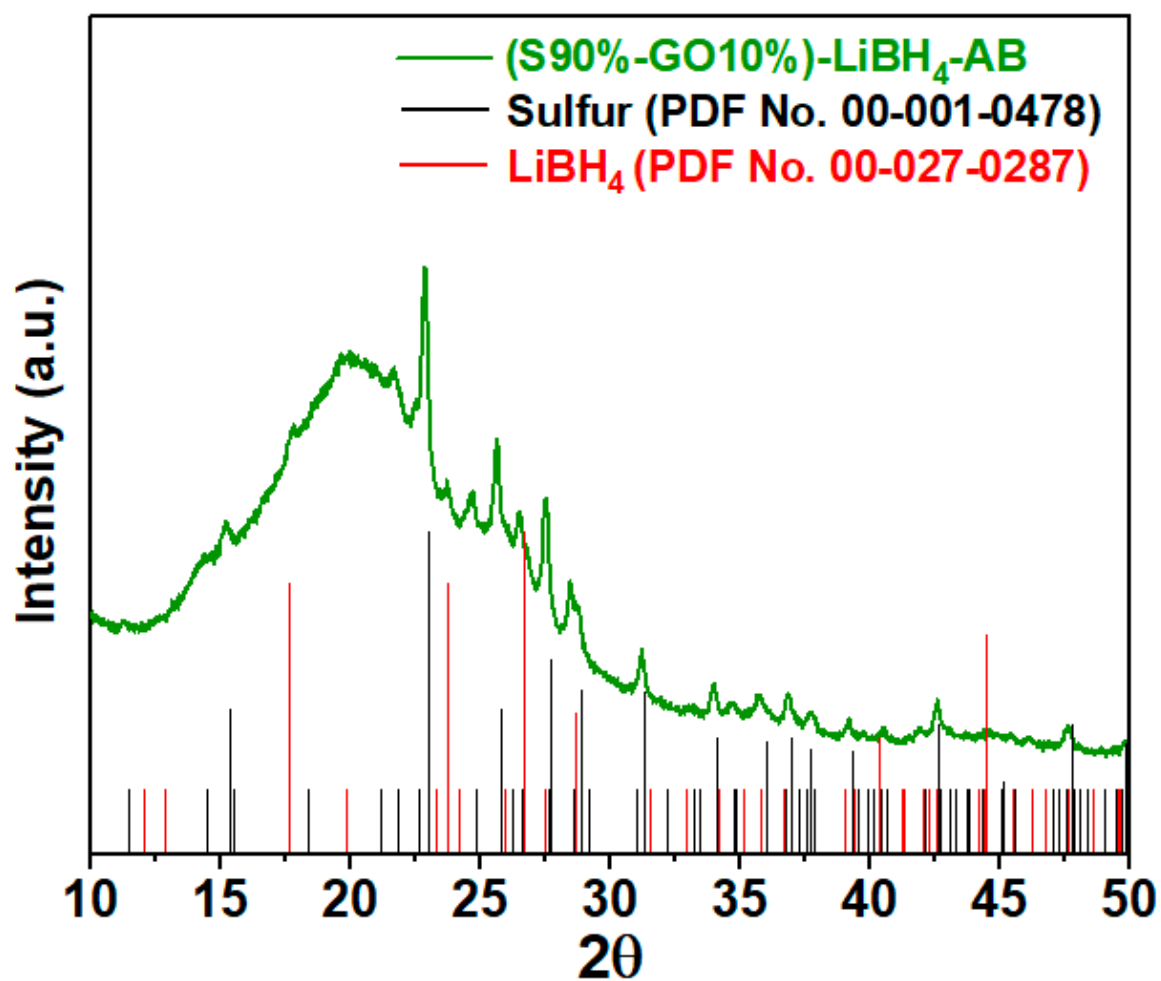


Figure S3. XRD plot of the (S90%-GO10%)-LiBH₄-AB composite electrode.

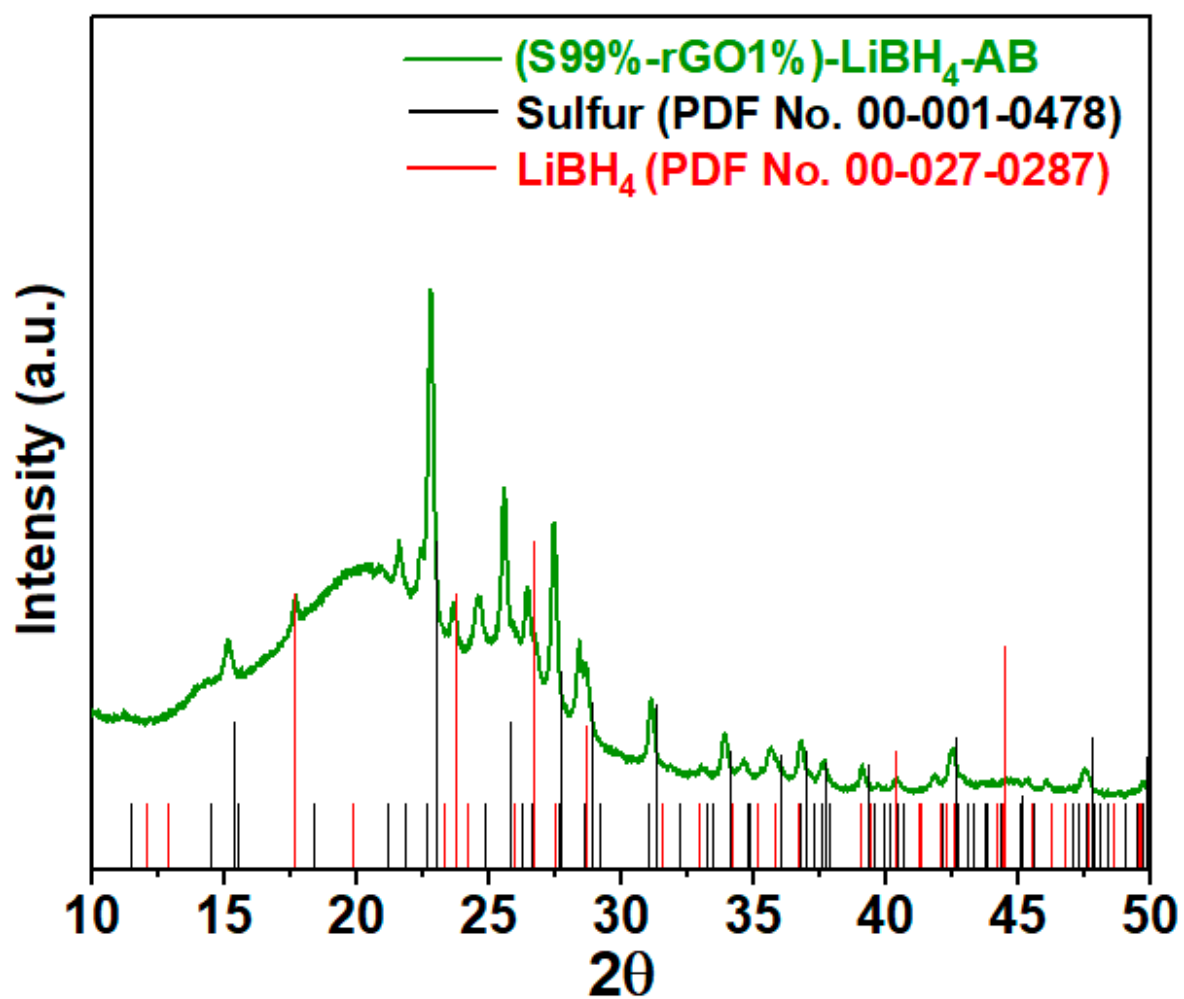


Figure S4. XRD plot of the (S99%-rGO1%)-LiBH₄-AB composite electrode.

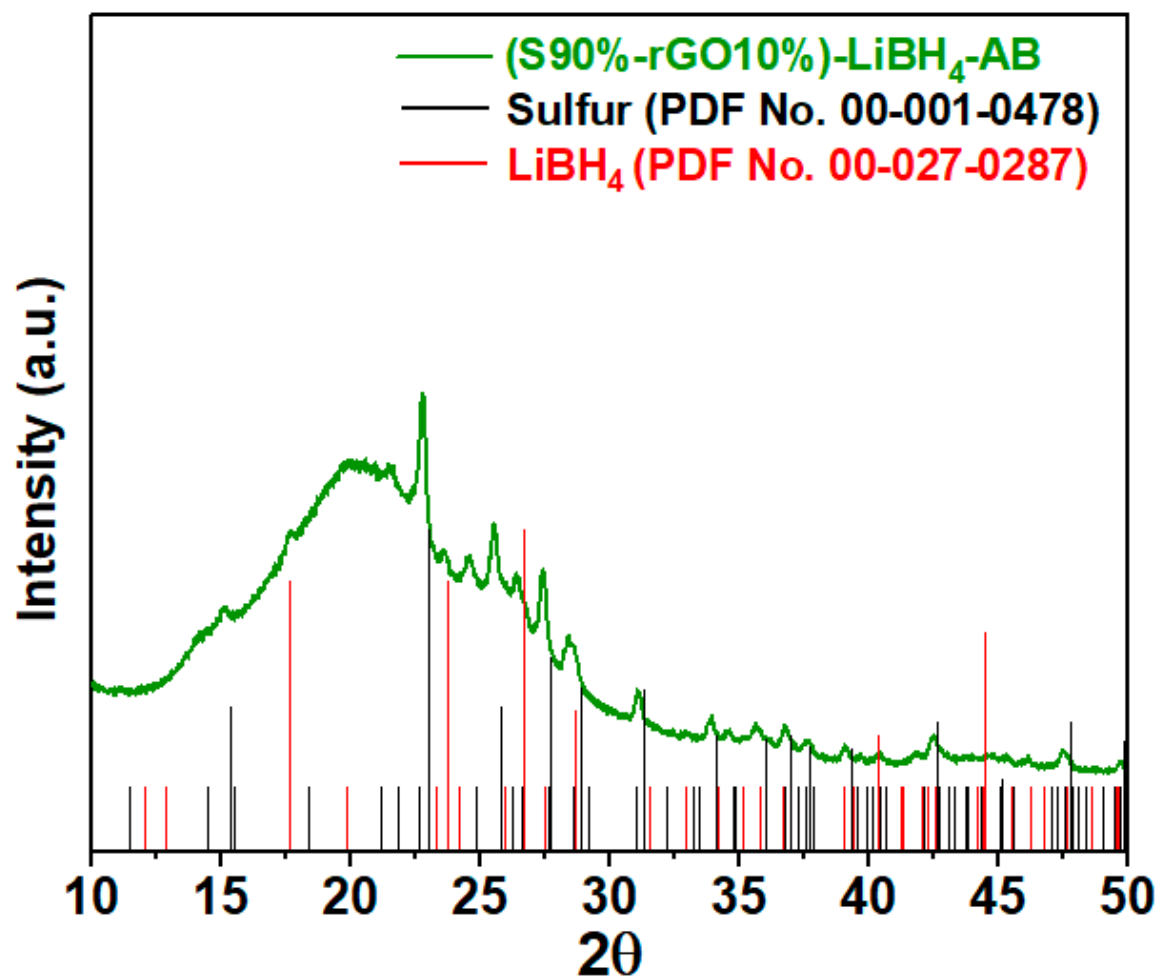


Figure S5. XRD plot of the (S90%-rGO10%)-LiBH₄-AB composite electrode.

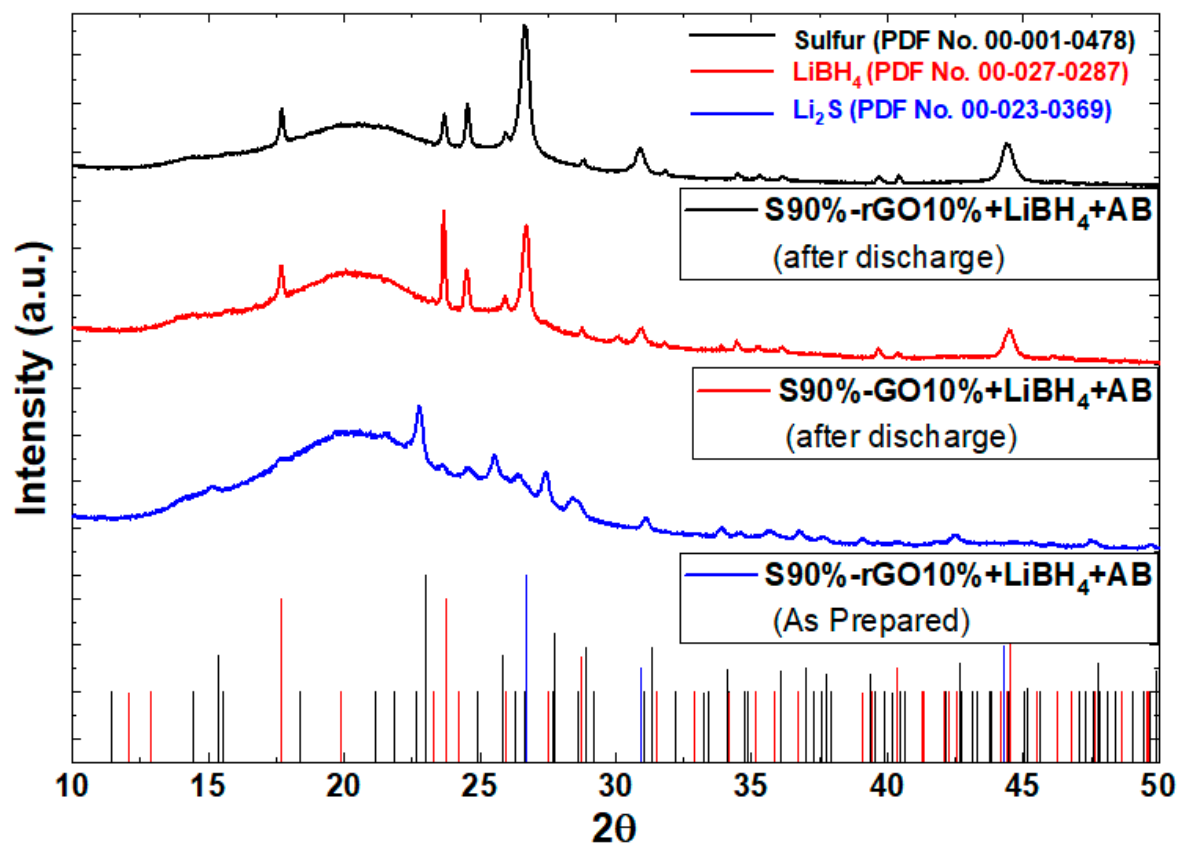


Figure S6. XRD plot of cells before and after discharge.

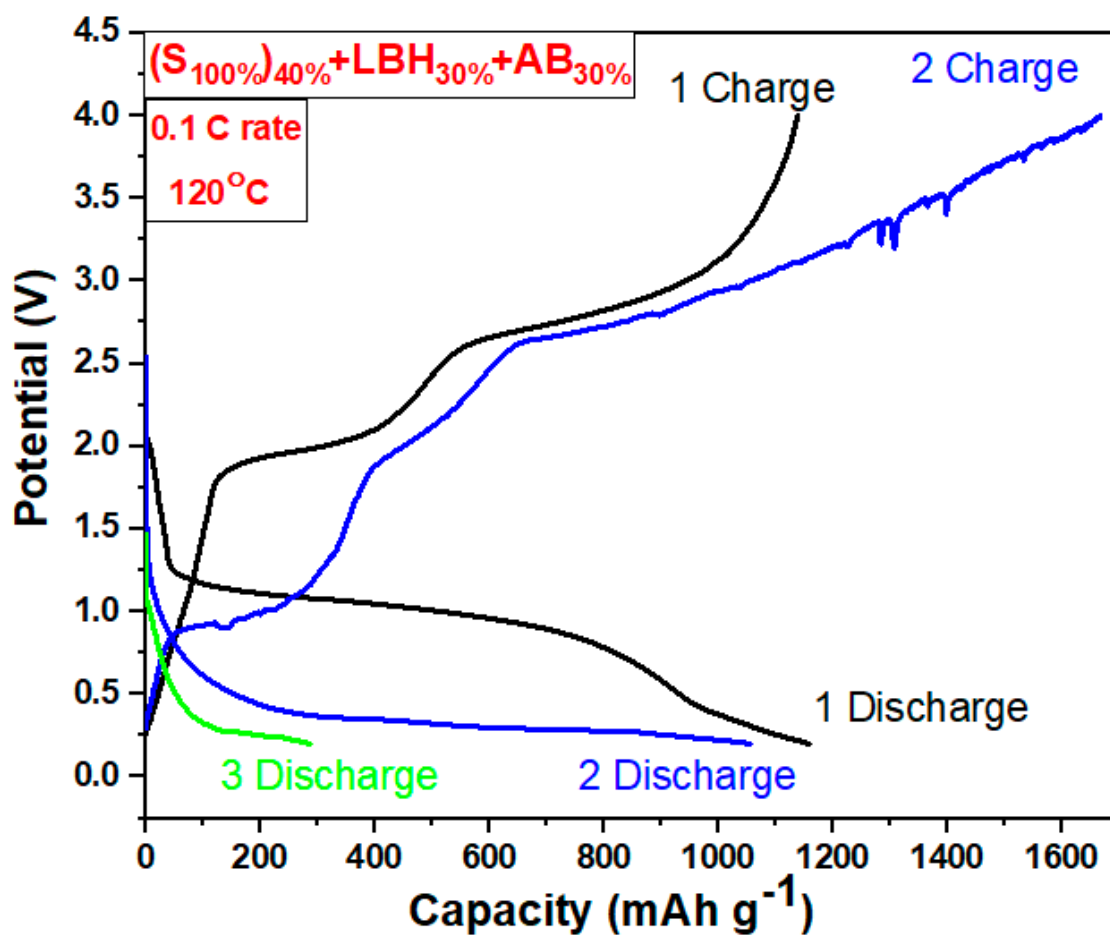


Figure S7. Charge—discharge profile of the S-LiBH₄-AB composite electrode without any additive (GO or rGO).