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Supporting Information

A Novel Strategy for High-performance Supercapacitor through Polyvinylpyrrolidone (PVP)-assisted In-situ Growth FeS_2

Muhammad Alief Irham,[1,3] Oktaviardi Bityasmawan Abdillah,[1,3] Darul Roni Rodiansyah, [1]

*Fakhrian Hanif Tejo Baskoro,[1] Haerul Fahmi,[1] Takashi Ogi[4], Ferry Iskandar[1,2,3]**

[1] Department of Physics, Faculty of Mathematics and Natural Sciences, Institut Teknologi Bandung, Bandung 40132, Indonesia

[2] Research Center for Nanoscience and Nanotechnology (RCNN), Institut Teknologi Bandung, Jl. Ganesha 10 Bandung 40132, Indonesia

[3] Collaboration Research Center for Advanced Energy Materials, National Research and Innovation Agency - Institut Teknologi Bandung, Jalan Ganesha 10, Bandung, West Java 40132, Indonesia

[4] Chemical Engineering Program, Department of Advanced Science and Engineering, Graduate School of Advanced Science and Engineering, Hiroshima University, 1-4-1 Kagamiyama, Hiroshima, Higashihiroshima, 739-8527, Japan

*Corresponding author: ferry@fi.itb.ac.id

Crystalinity of Fe:S ratio

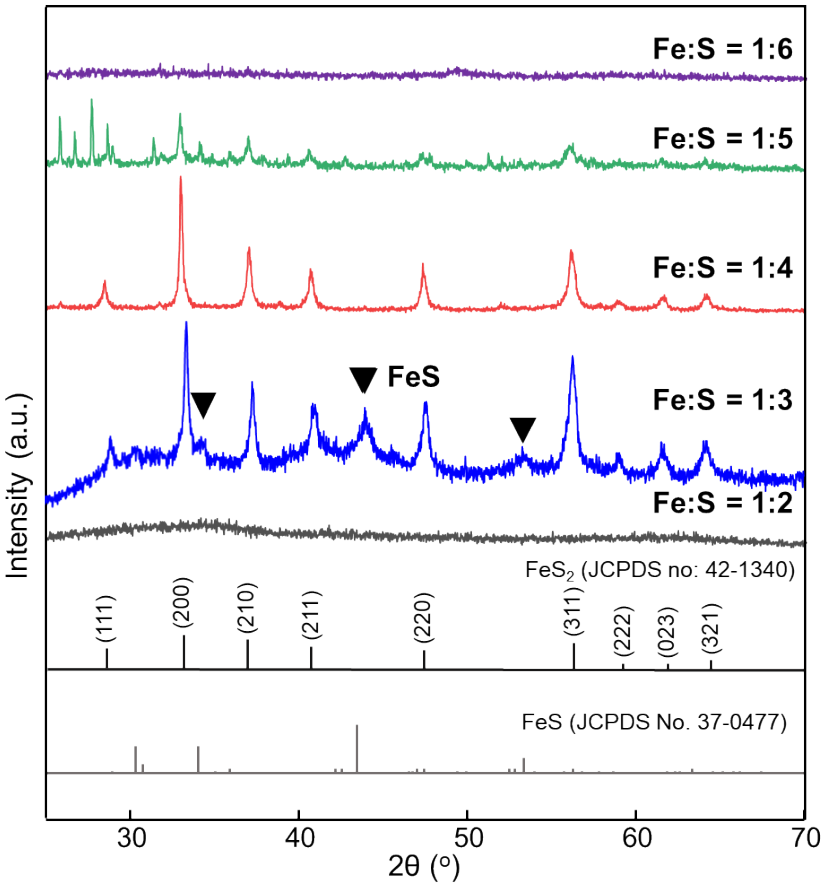

Figure S1. XRD peaks of FeS_2 with various Fe:S ratio. The Fe:S ratio of 1:4 show good crystallinity match with its JCPDS 42-1340

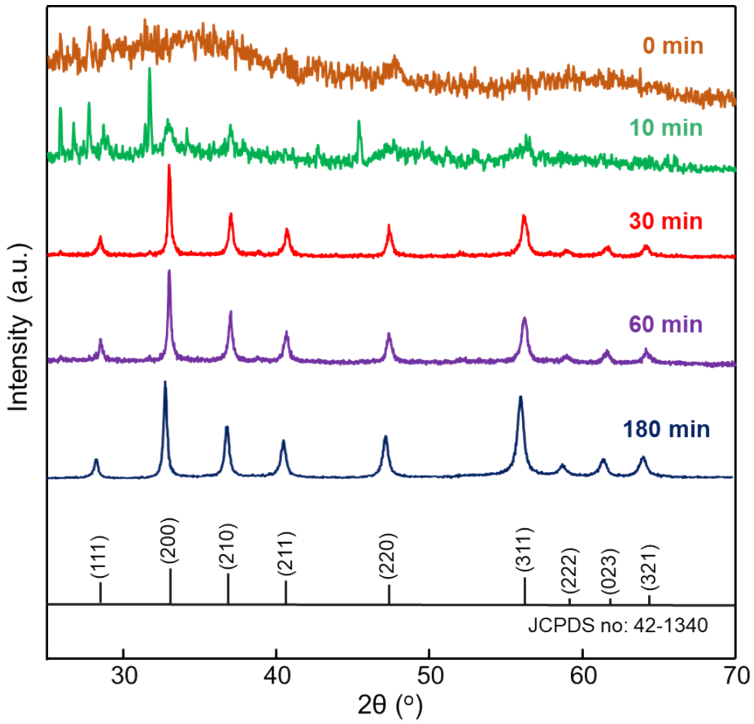

Figure S2. XRD peaks of FeS_2 with various synthesis times. Starting from 30 min the FeS_2 is formed and no other peaks was observed in longer synthesis time.

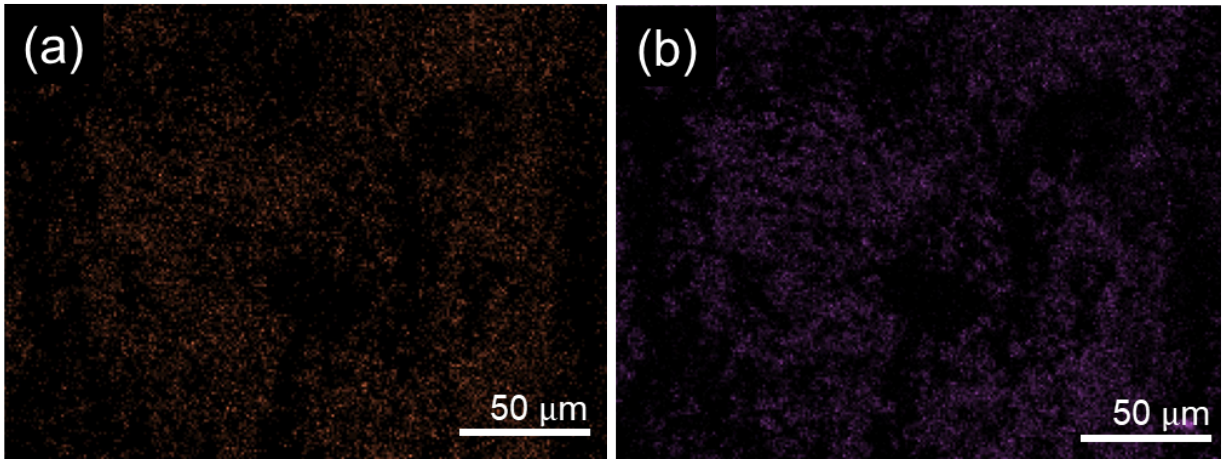

Figure S3. EDX mapping of (a) iron and (b) sulfur from the synthesized FeS_2/NF 0wt% corresponds to Figure 4a in main manuscript.

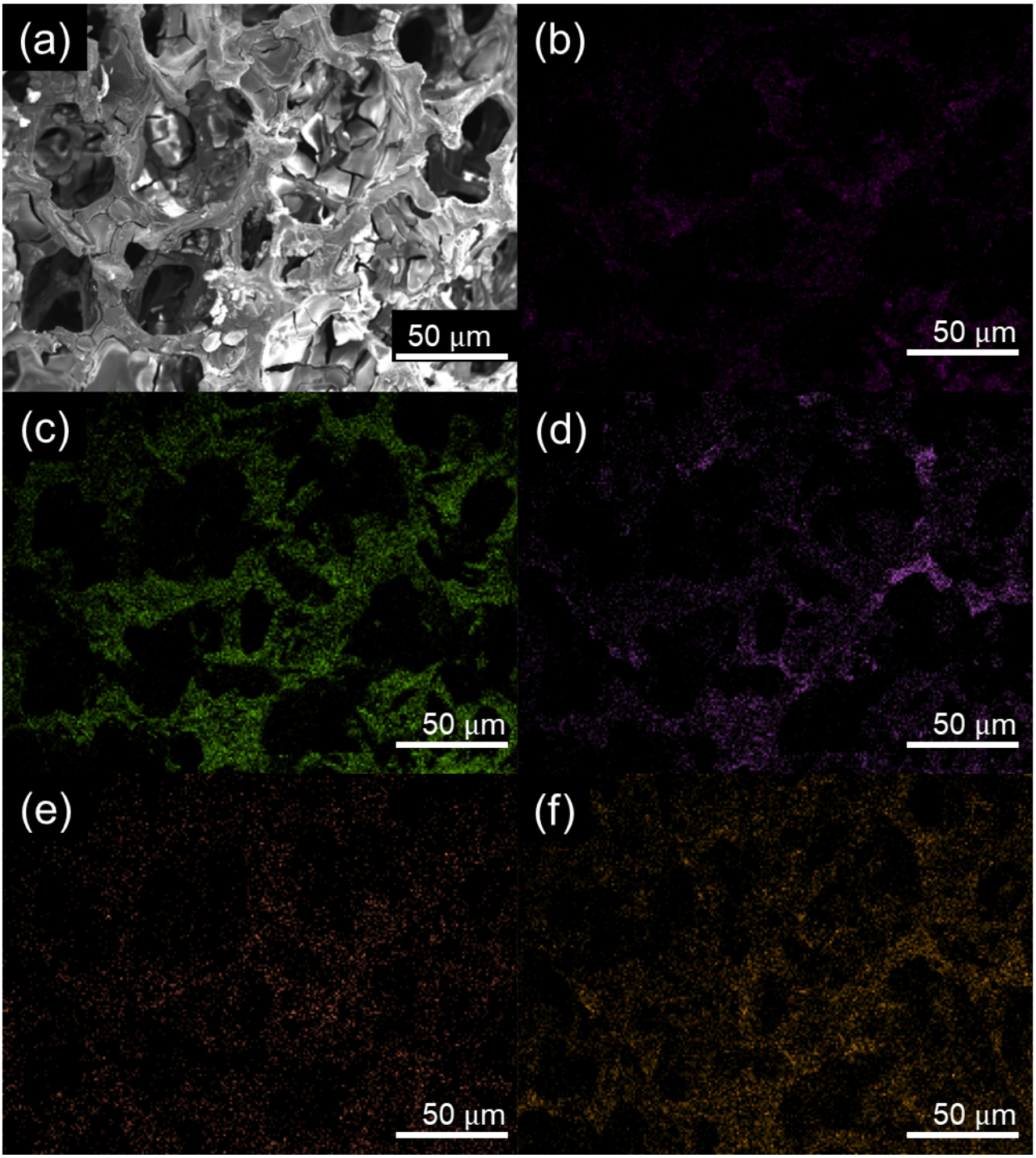

Figure S4. (a) SEM images synthesized FeS_2/PVP 10wt% with its EDX mapping of (b) Carbon, (c) Oxygen, (d) Sulfur, (e) Iron, and (f) Nickel.

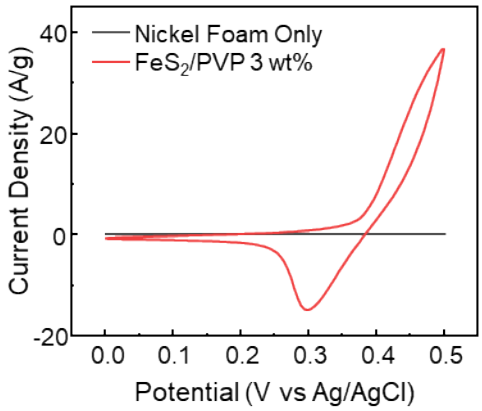

Figure S5. CV comparison of FeS_2/PVP 3wt% compared to the bare Nickel Foam.

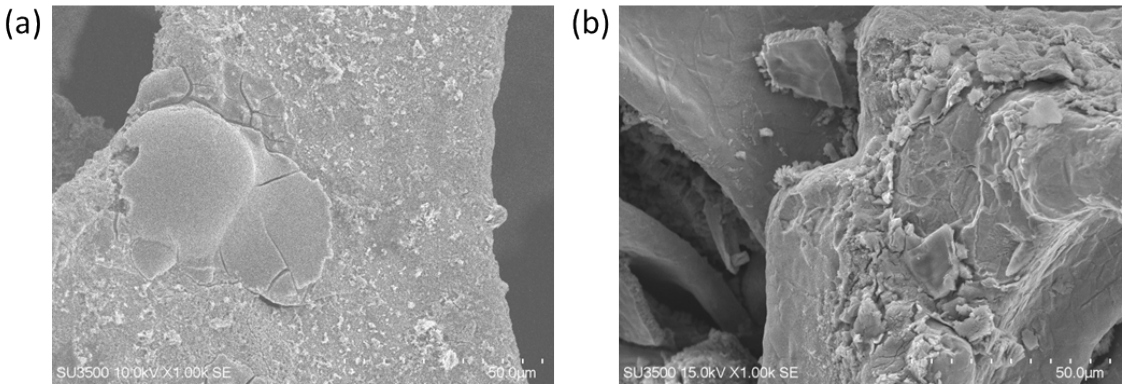

Figure S6. SEM images of FeS2/PVP samples (a) before and (b) after cycling.

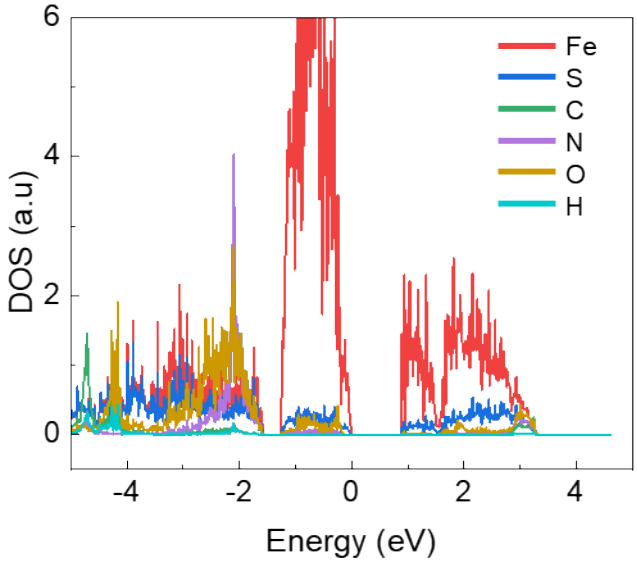

Figure S7. Projected Density of States (PDOS) of FeS_2/PVP slab per atom. The hybridized states between O and Fe were observed, confirming those atom hybridization.