**Controlled Nanostructures and Simultaneous Passivation of Black Phosphorus (Phosphorene) with Nafion**

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**FIG. S1.** TEM micrographs of A) phosphorene nanosheets embedded in polymer B) phosphorene nanoneedle C) very thin and transparent nanosheet; A1 B1 and C1 are the SAED patterns of samples A, B and C respectively.

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**FIG. S2.** a) HRTEM micrograph of phosphorene nanosheet and its corresponding b) SAED patterns; c) irregular morphology of Nafion and d) SAED patter of Nafion in which an amorphous region is associated with the diffuse rings.