Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.
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Supplementary Information

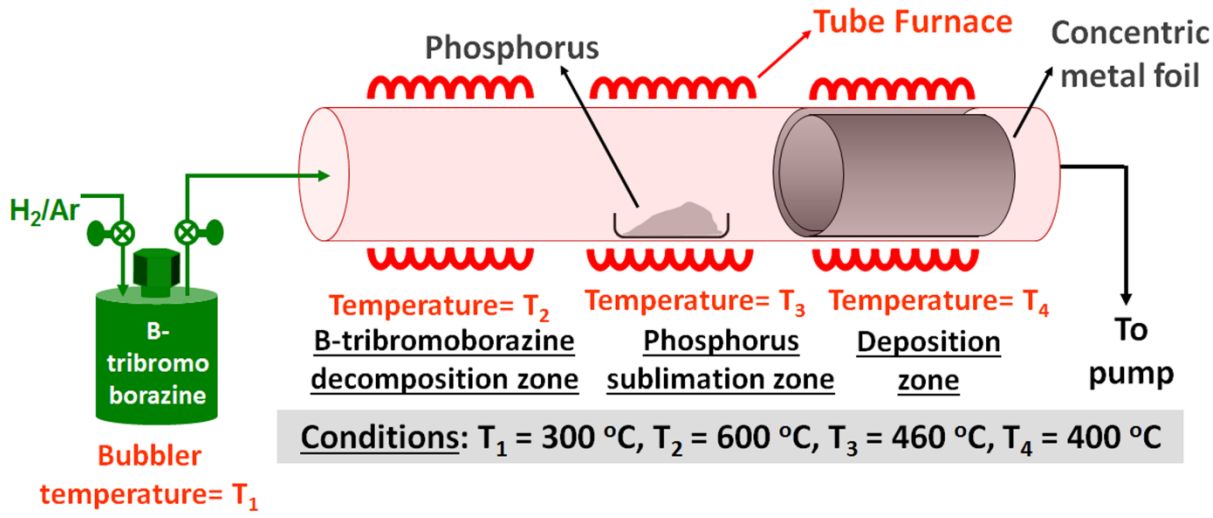
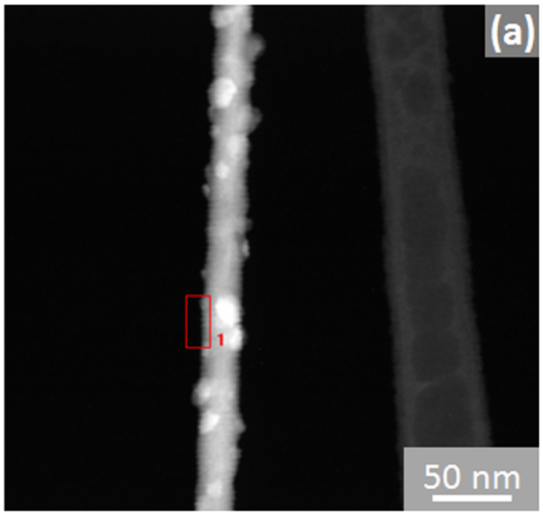


Figure S1. A schematic representing the hot-walled chemical vapor deposition (HWCVD) setup employed for the synthesis of BN decorated Zn_3P_2 nanowires.



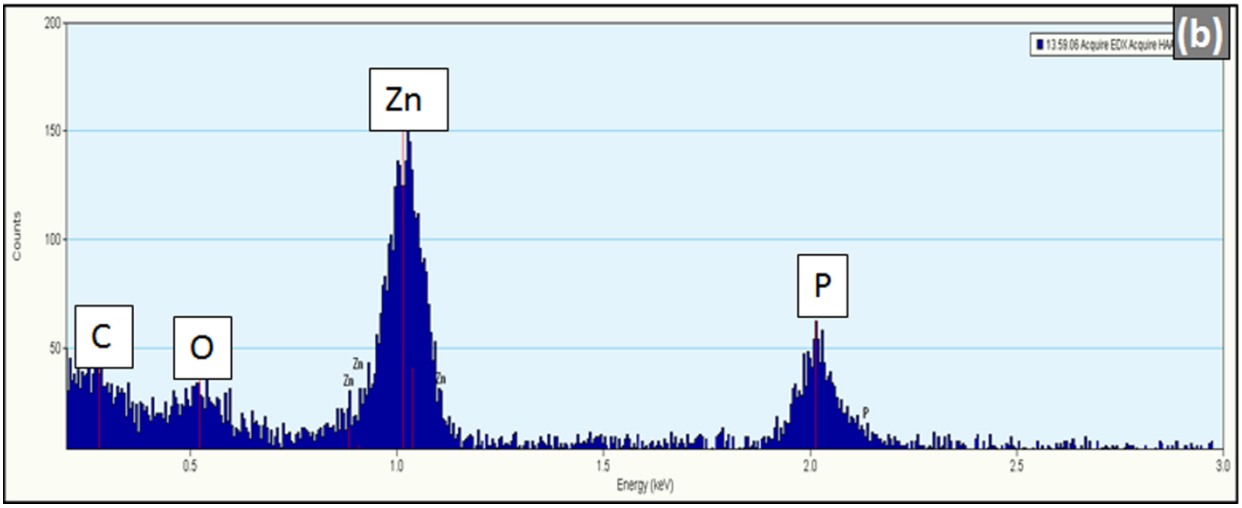


Figure S2. (a) Electron micrograph and (b) the corresponding energy dispersive spectrum of a Zn_3P_2 nanowire non-conformally decorated with BN. As observed in the spectrum, no boron or nitrogen was observed. However, the zinc and phosphorus components of the nanowires are clearly visible in the spectrum. The carbon signal is believed to be from the holey carbon coating of the TEM grids holding the nanowire samples.

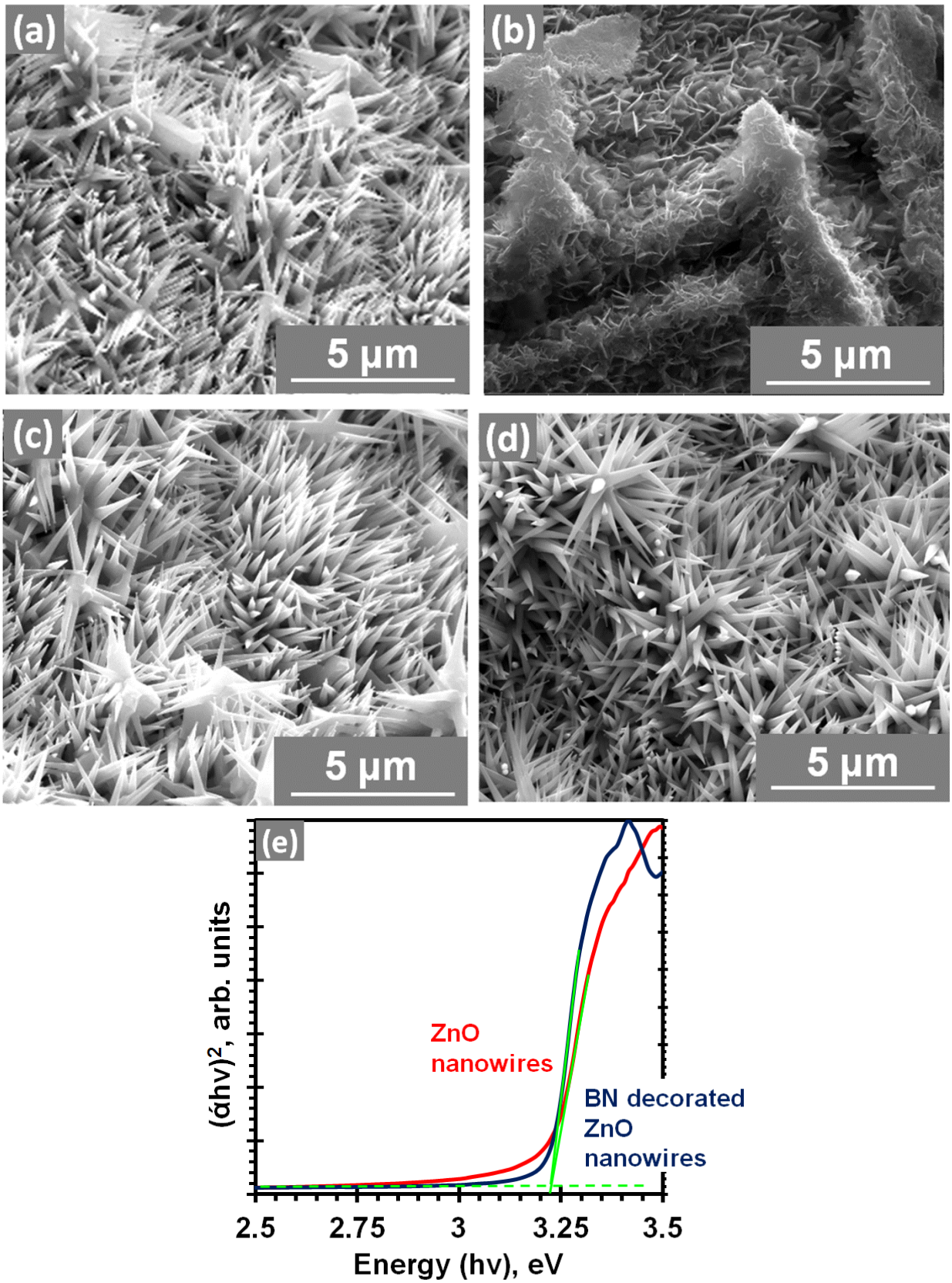

(a)
5 µm
(b)
5 µm
(c)
5 µm
(d)
5 µm
(e)
(άhν)², arb. units
ZnO
nanowires
BN decorated
ZnO
nanowires
2.5
2.75
3
3.25
3.5
Energy (hν), eV

Figure S3. (a) Scanning electron micrographs of (a) as-obtained ZnO nanowires, (b) as-obtained ZnO nanowires after treatment with pH 3 HCl solution, (c) BN decorated ZnO nanowires, and (d) BN decorated ZnO nanowires after pH 3 HCl solution treatment. From the micrographs, it is clear, beyond doubt, that BN decoration of ZnO nanowires imparted them stability against acid-assisted degradation. (e) Tauc plot of both pristine and BN decorated ZnO nanowires. The plot indicated that the decoration process did not majorly alter the E_g of ZnO nanowires.

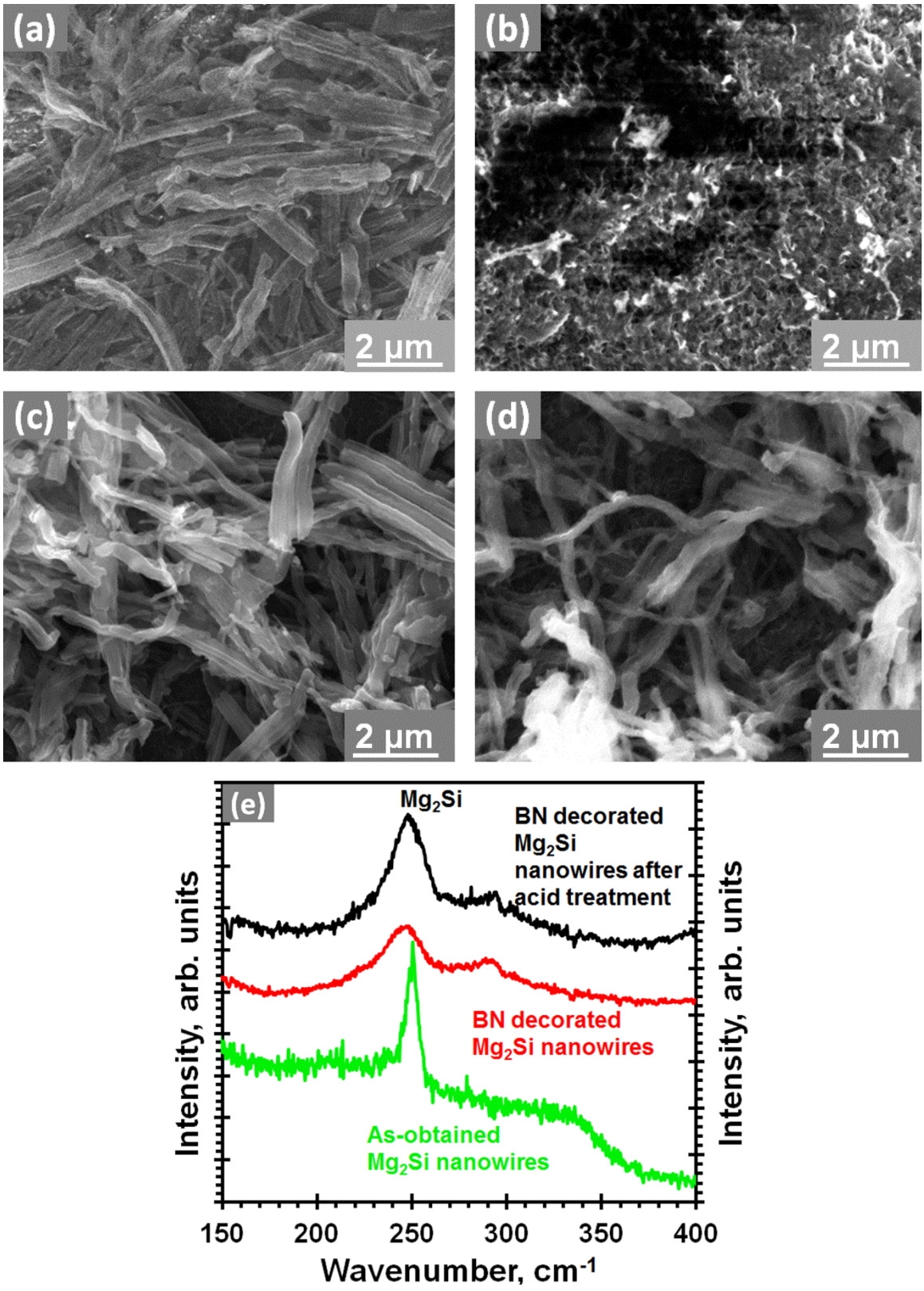


Figure S4. Scanning electron micrographs of (a) as-obtained Mg_2Si nanowires, (b) as-obtained Mg_2Si nanowires after acid treatment, (c) BN surface decorated Mg_2Si nanowires, and (d) BN

surface decorated Mg_2Si nanowires after acid treatment. It is very clear from the figure (b) and (d) that BN surface decoration imparted resistance against acid-assisted degradation to Mg_2Si nanowires. (e) Raman spectra of the nanowires indicating that the nanowires are indeed composed of Mg_2Si and that they retained the same composition after BN decoration and acid treatment.