

## Supplementary Information

### Highly dispersed Ni nanoclusters spontaneously formed on hydrogen boride sheets

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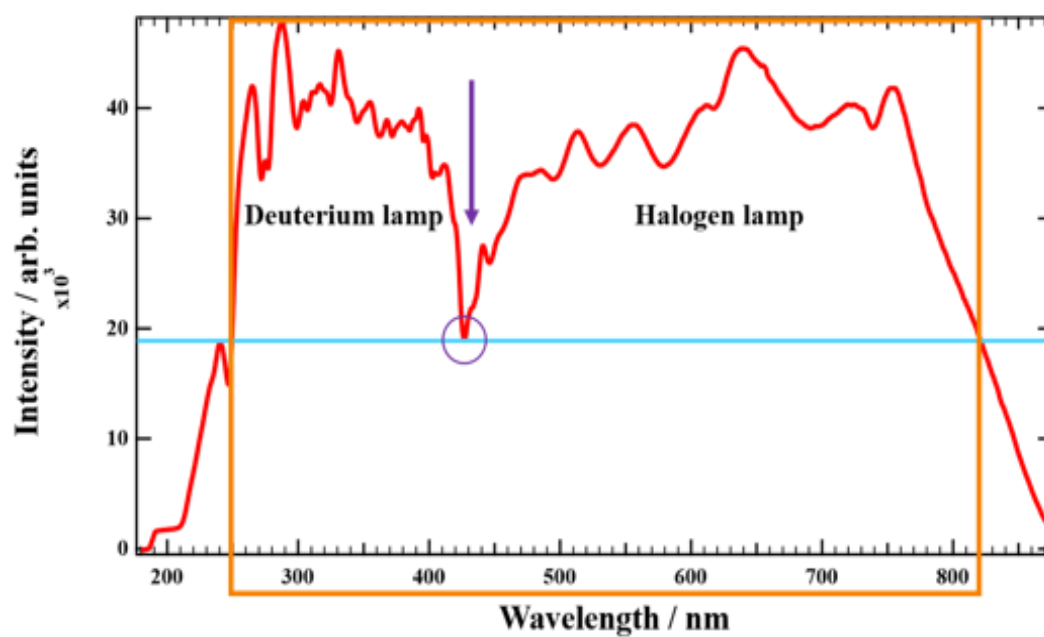
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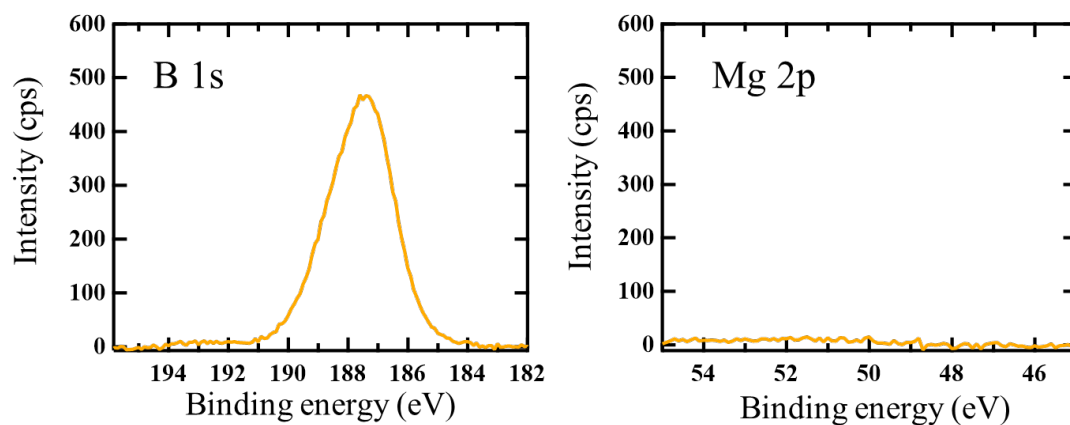
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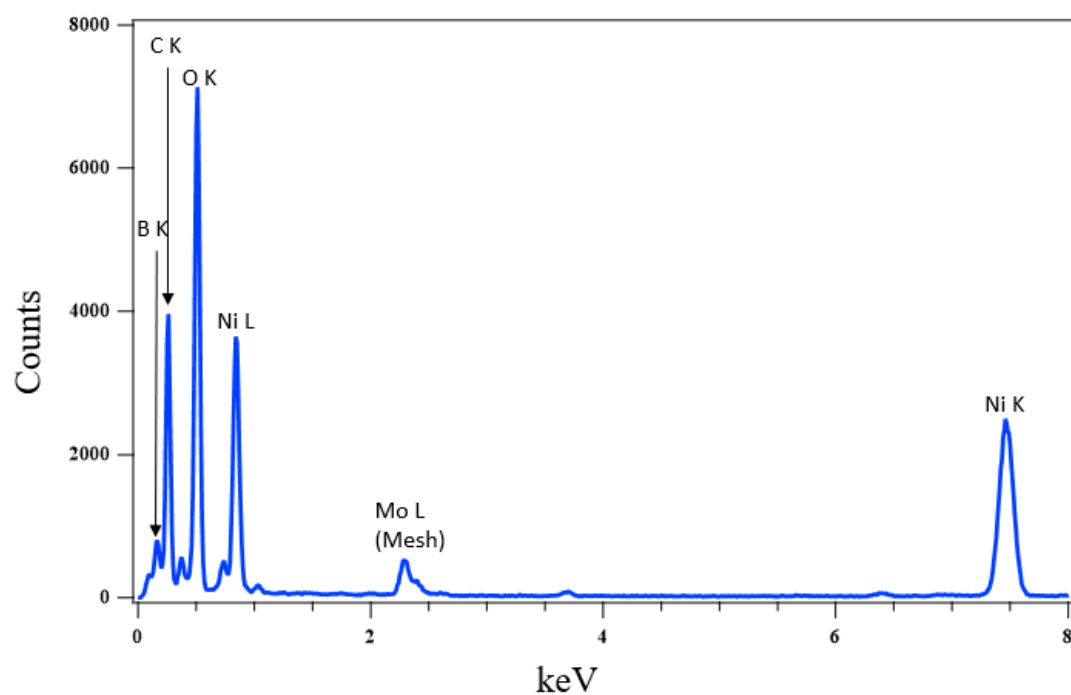
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**Figure S1** Intensity of the light source of the UV-vis device. Areas with intensity less than that of the border between the deuterium lamp and the halogen lamp (below 250 nm and above 820 nm) were considered unreliable because of the low intensity of the light source.



**Figure S2** X-ray photoelectron spectra of HB. Absence of Mg, presence of negatively charged B, and absence of oxidized B indicate that HB does not include the by-product  $B(OH)_3$ , as well as starting material  $MgB_2$  [1-8,29].



**Figure S3** Energy-dispersive X-ray spectra (EDS). EDS of Ni nanoclusters supported HB (HB:Ni = 100:10). B of HB, C, O, and Ni are observed (intensity of B is small because the sensitivity for B is low).