# Supporting Information
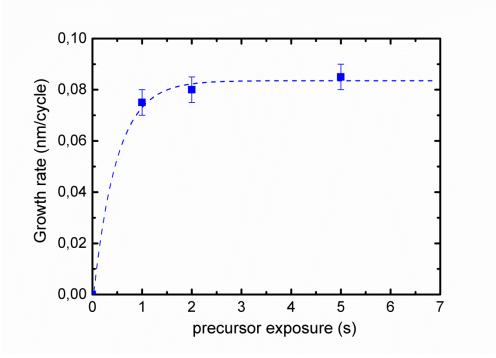
## Boron Nitride as a novel support for highly stable Palladium nanocatalysts by Atomic Layer Deposition

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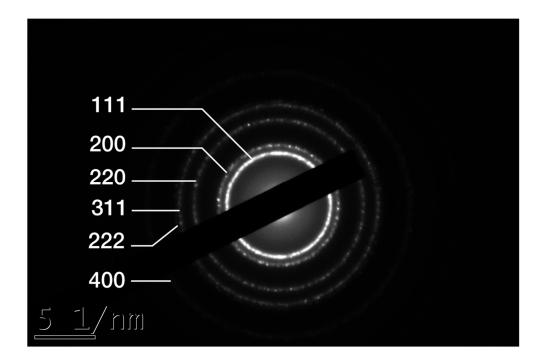
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Figure S1: Saturation curve of the BN film growth as a function of the $BBr_3$ exposure time, depicting the saturated growth of the film.

Table S1: Properties of BN films prepared by ALD using BBr$_3$ as precursor and NH$_3$ as co-reactant at 750°C. The substrates were Si(100) wafers and the substrate temperature was 750°C. In situ spectroscopic ellipsometry (SE), X-Ray reflectometry (XRR), atomic force microscopy (AFM), X-Ray photoelectron spectroscopy (XPS) measurements were used for the analysis. The films were 25 nm thick for all analysis.

| Properties | Value | Analysis technique |
|---|---|---|
| Growth-per-cycle (Å/cycle) | 0.8±0.1 | SE |
| Mass density (g/cm$^3$) | 2.2±0.3 | XRR |
| RMS roughness (nm) | 3.5±2 | AFM |
| C content (at.%) | 4±3 | XPS |
| O content (at.%) | 7±3 | XPS |

| Crystal | Diameter of the diffraction rings ($nm^{-1}$) | d (Å) | Crystal planes |
|---|---|---|---|
| Pd | 8.46 | 2.36 | 111 |
| | 9.90 | 2.02 | 200 |
| | 13.93 | 1.44 | 220 |
| | 16.34 | 1.22 | 311 |
| | 17.21 | 1.16 | 222 |
| | 21.86 | 0.91 | 400 |

<u>Figure S2:</u> Selected area electron diffraction of a BN/Pd NPs sample prepared using 300 cycles of the Pd ALD process, corresponding to Figure 1c. The substrates used were $Si_3N_4$ TEM windows covered with 15 nm of BN. The table corresponds to the indexing of the diffraction rings.