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Platinum Atomic Layer Deposition on Metal Substrates: A Surface Chemistry Study

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**Highlights**

- MeCpPtMe<sub>3</sub> adsorption on Ni is self-limiting up to 625 K, grows multilayers at higher Ts.
- O<sub>2</sub> treatment removes all carbon from the surface and grows a thin nickel oxide film on top.
- Further MeCpPtMe<sub>3</sub> dosing reduces that NiO back to metallic nickel.
- Pt migrates to the layer below the NiO film and mixes with the Ni(0) below.
- Because of that, no Pt films grow on top of Ni by this ALD process.

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<sup>‡</sup> Contribution to the special issue in Surface Science entitled "Unraveling Surface Structure and Chemical Pathways: In Honor of Jan Hrbek"

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