

**Supporting Information**

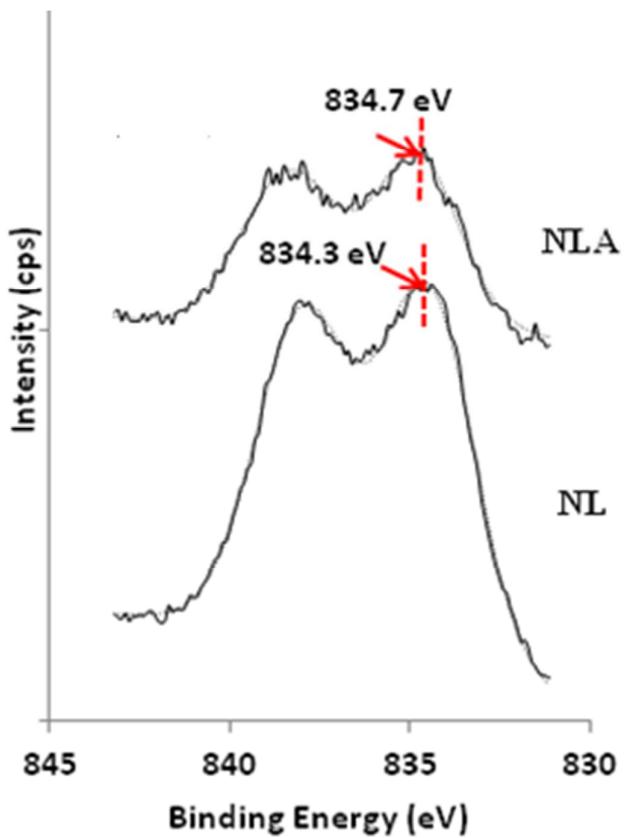
**Inverse NiAl<sub>2</sub>O<sub>4</sub> on LaAlO<sub>3</sub>-Al<sub>2</sub>O<sub>3</sub>: Unique catalytic structure for stable  
CO<sub>2</sub> reforming of methane**

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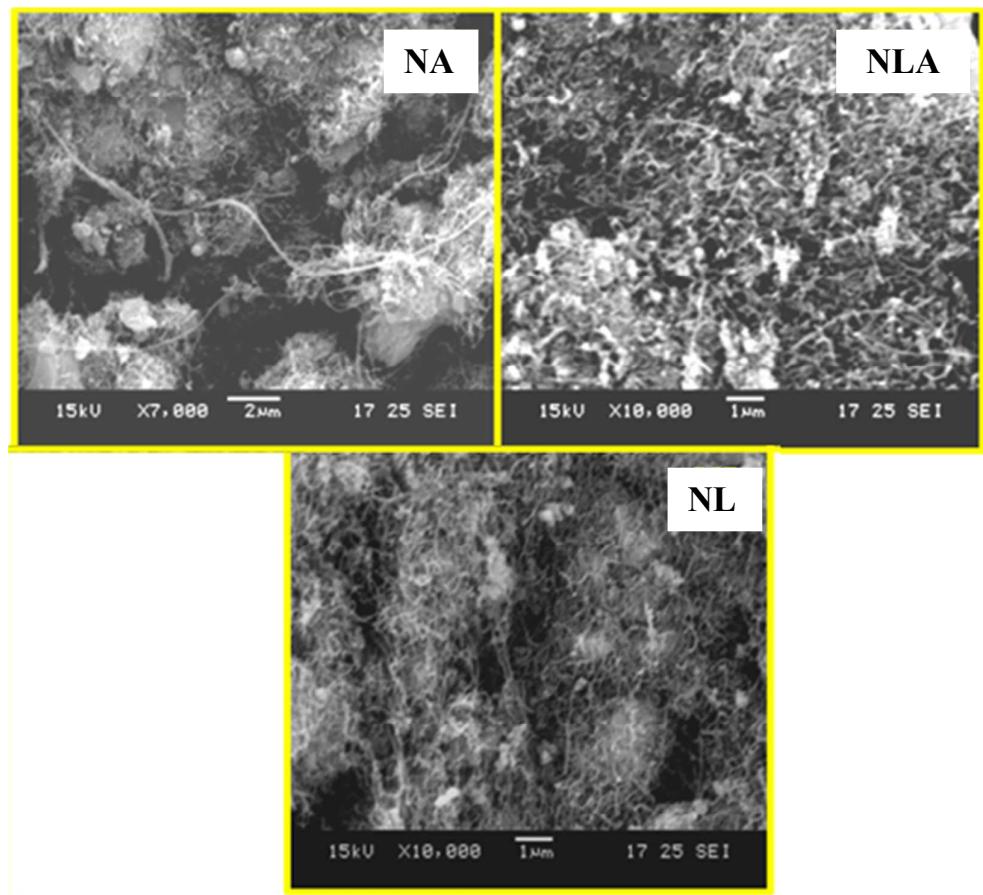
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**Table S1** XRD phase references from Powder Diffraction (PDF) database

Phase	PDF No.
LaAlO <sub>3</sub>	#00-031-0022
$\gamma$ -Al <sub>2</sub> O <sub>3</sub>	#00-050-0741
$\alpha$ -Al <sub>2</sub> O <sub>3</sub>	# 00-001-1296
NiO	#00-001-1258
Ni	#00-001-1258
NiAl <sub>2</sub> O <sub>4</sub>	#00-001-1299
La <sub>2</sub> O <sub>3</sub>	# 00-024-0054
LaNiO <sub>3</sub>	# 00-88-0633



**Figure S1.** XPS La 3d<sub>5/2</sub> profiles for NL, NLA and NLAO catalysts



**Figure S2.** SEM images of spent catalysts after DRM reaction