

**Thermally stable sandwich-type catalysts of Pt nanoparticles encapsulated in
CeO₂ nanorods/CeO₂ nanoparticles core/shell supports for methane oxidation
at high temperatures**

Zhiyun Zhang, [†] Jing Li, [†] Wei Gao, Zhaoming Xia, Yuanbin Qin, Yongquan Qu,
Yuanyuan Ma*

*Center for Applied Chemical Research, Frontier Institute of Science and
Technology, and State Key Laboratory for Mechanical Behavior of Materials,
Xi'an Jiaotong University, Xi'an, China, 710049. E-mail: yyma@mail.xjtu.edu.cn.
Tel: +86-29-83395357.*

[†] Z. Zhang and J. Li give equally contribution

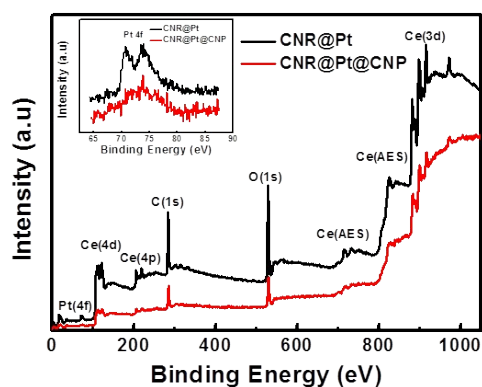


Fig. S1. XPS survey spectra of the CNR@Pt and CNR@Pt@CNP catalysts.

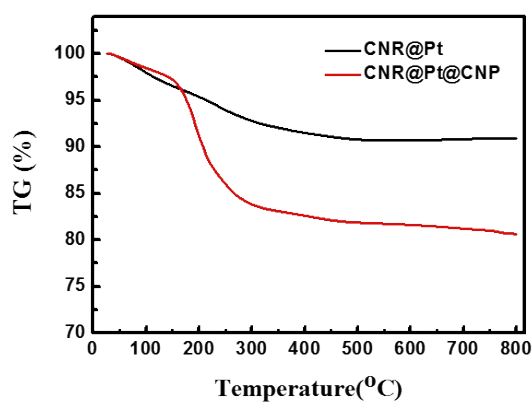


Fig. S2. TGA profiles under air flow of fresh CNR@Pt and CNR@Pt@CNP catalysts.

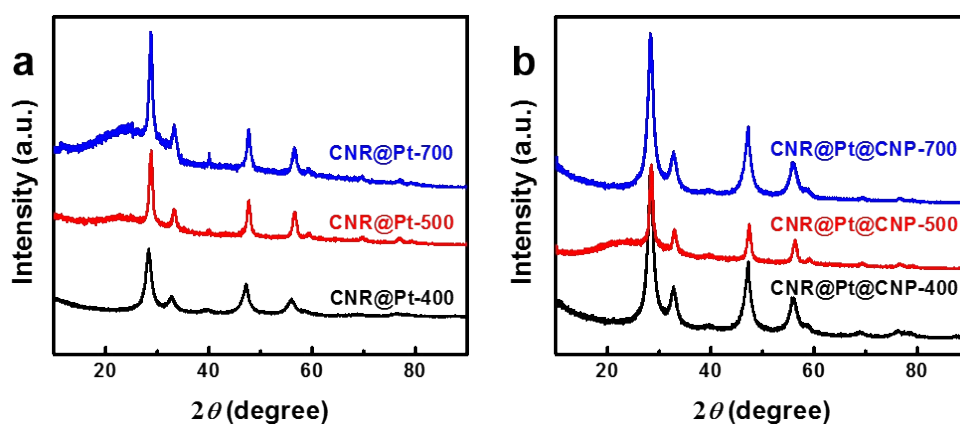


Fig. S3. XRD patterns of the CNR@Pt and CNR@Pt@CNP treated at 400 °C, 500 °C and 700 °C.

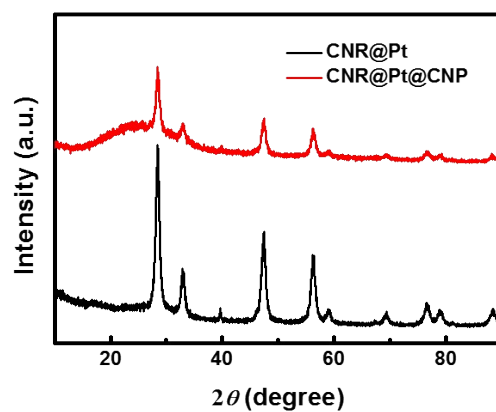


Fig. S4. XRD patterns of the spent CNR@Pt and CNR@Pt@CNP catalysts after methane oxidation at 650 °C for 12 h.