

Core-regenerated vapor-solid growth of hierarchical VO_x

nanobranchlets on VO₂@TiO₂ core/shell nanorods

Yamei Li¹, Shidong Ji¹, Yanfeng Gao^{1,3}, Hongjie Luo^{1,3}, Ping Jin^{*1,2}, Shaotang Li¹,
Meng Jiang¹, Yijie Zhou¹, Rong Li¹, Bingbing Wang¹

1 State Key Laboratory of High Performance Ceramics and Superfine Microstructure, Shanghai Institute of Ceramics, Chinese Academy of Sciences, Dingxi 1295, Changning, Shanghai, 200050, China

2 National Institute of Advanced Industrial Science and Technology (AIST), Moriyma, Nagoya 463-8560, Japan

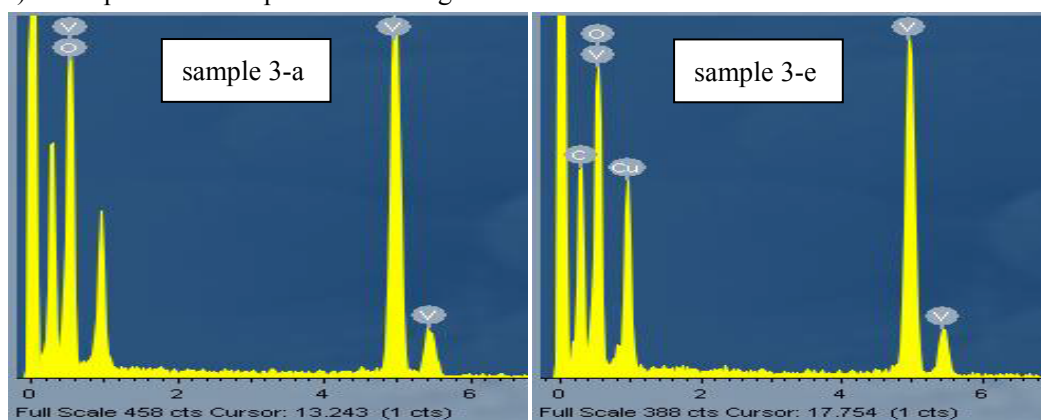
3 School of Materials Science and Engineering, Shanghai University, Shangda Rd. 99, Baoshan, Shanghai 200444, China

Email for correspondence: p-jin@mail.sic.ac.cn

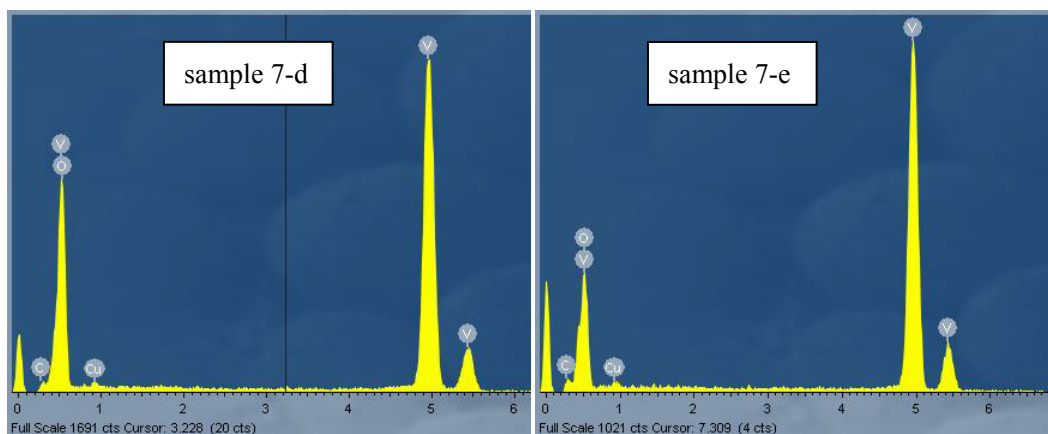
Supplementary information S1.

Elemental qualitative analysis by EDS

1) EDS spectra for sample shown in Fig.3-a and e:

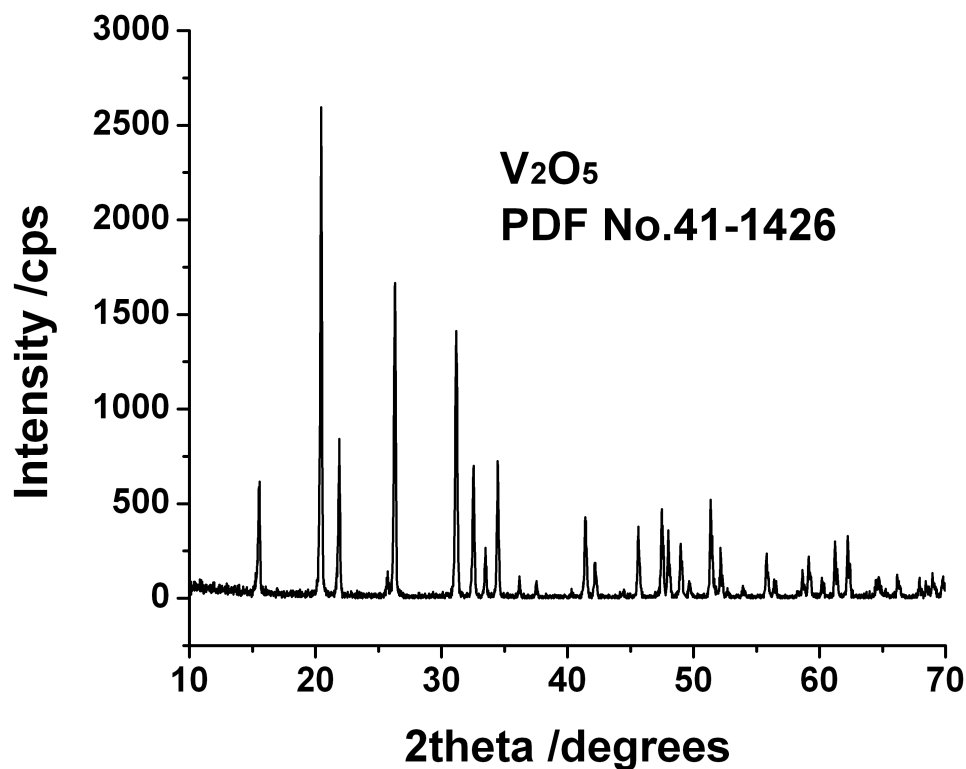


2) EDS spectra for sample shown in Fig.7-d and e:

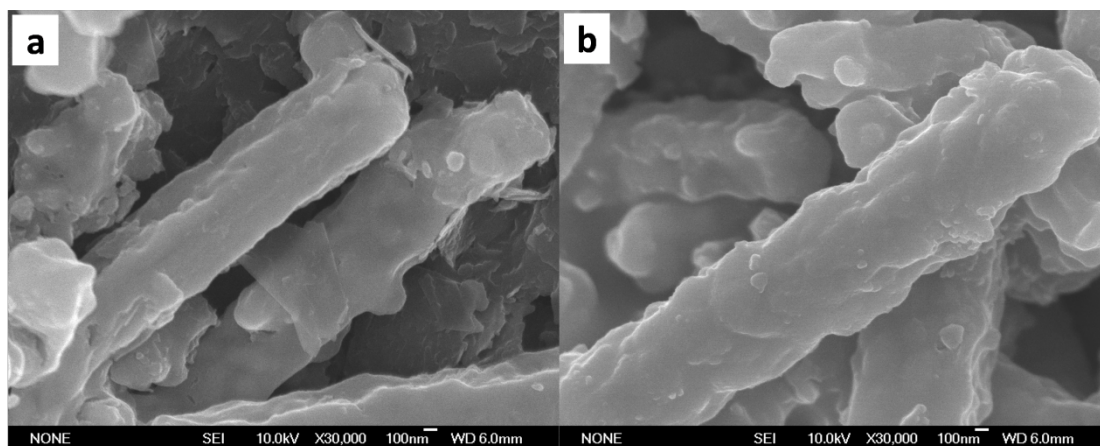


Supplementary information S2.

a) XRD spectra after air annealing the VO₂ powders in air at 350 °C for 30 mins.



b) SEM images for V₂O₅@TiO₂ core/shell samples with shell thickness at 20nm (a) and 70nm (b) without addition of PVP. No stem-like nanostructures formed on the surface of the shell.



Supplementary information S3.

The microstructure of TiO₂ shell.

a) and b) are the TEM images for TV-20 sample before and after annealing. R1) gives the TiO₂ grains and the grain boundary in a specific part of the shell. HRTEM fringes can be indexed to anatase {101} planar spaces.

