

## Supplementary Information

### Core-shell structure $\text{ZrO}_2\text{-Al}_2\text{O}_3$ aerogels prepared by one-step drying under constant pressure

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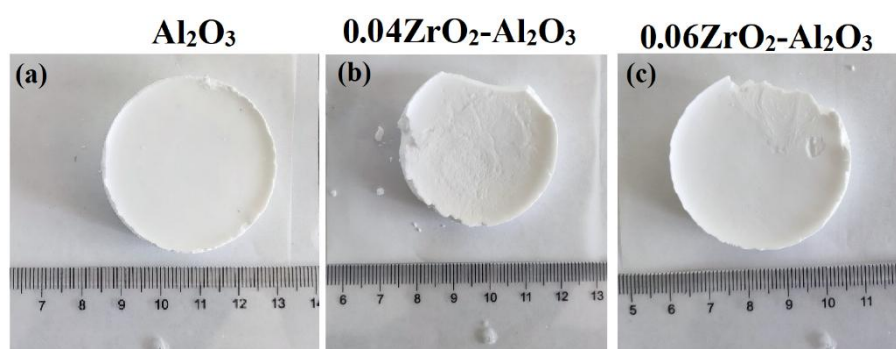


Fig. S1— Photographs of the prepared aerogels

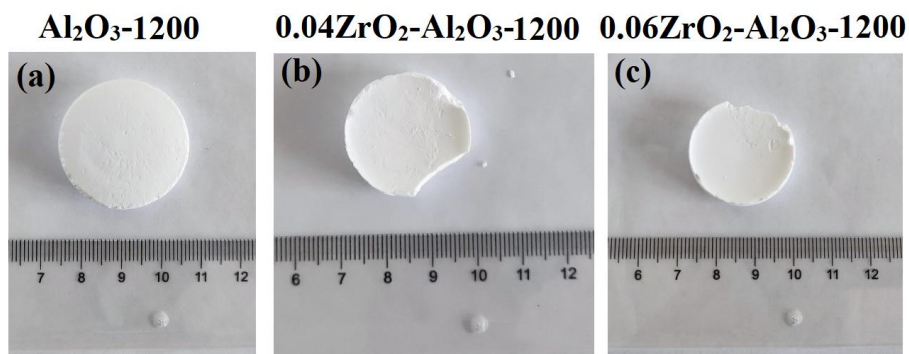
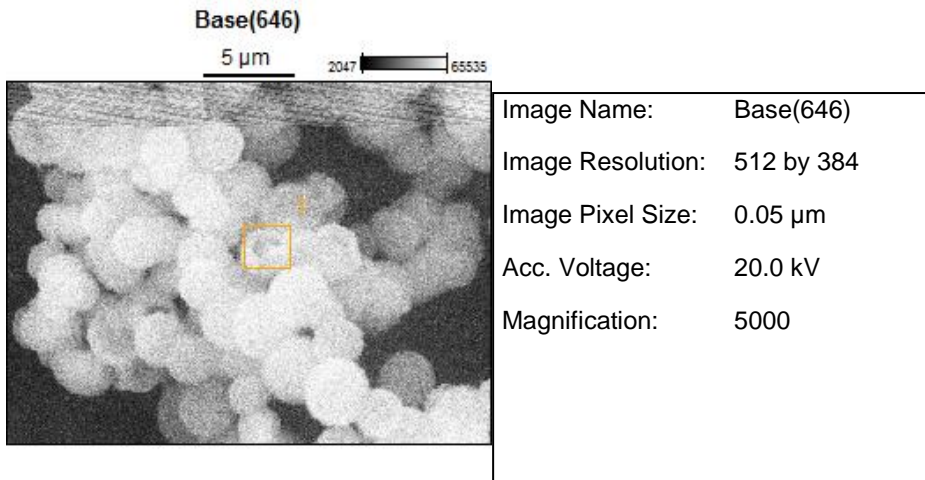


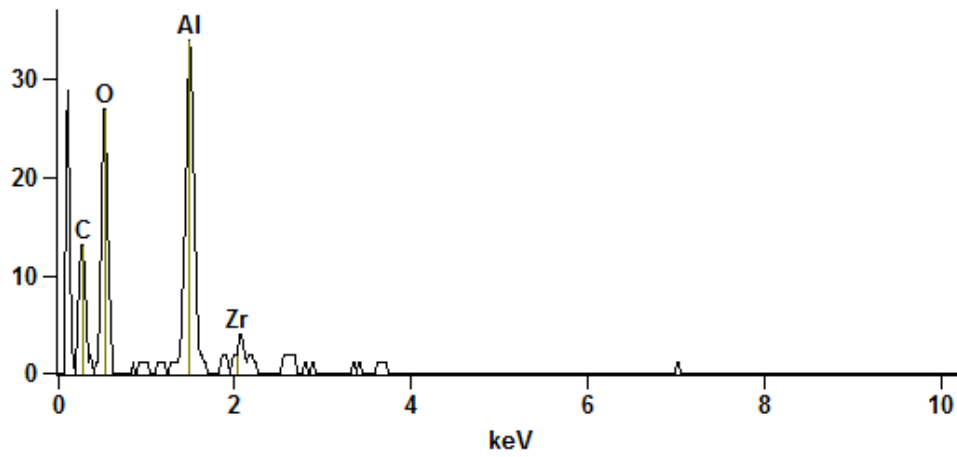
Fig. S2 —Photographs of the aerogels treated at  $1200^\circ\text{C}$

$0.02\text{ZrO}_2\text{-Al}_2\text{O}_3$ :

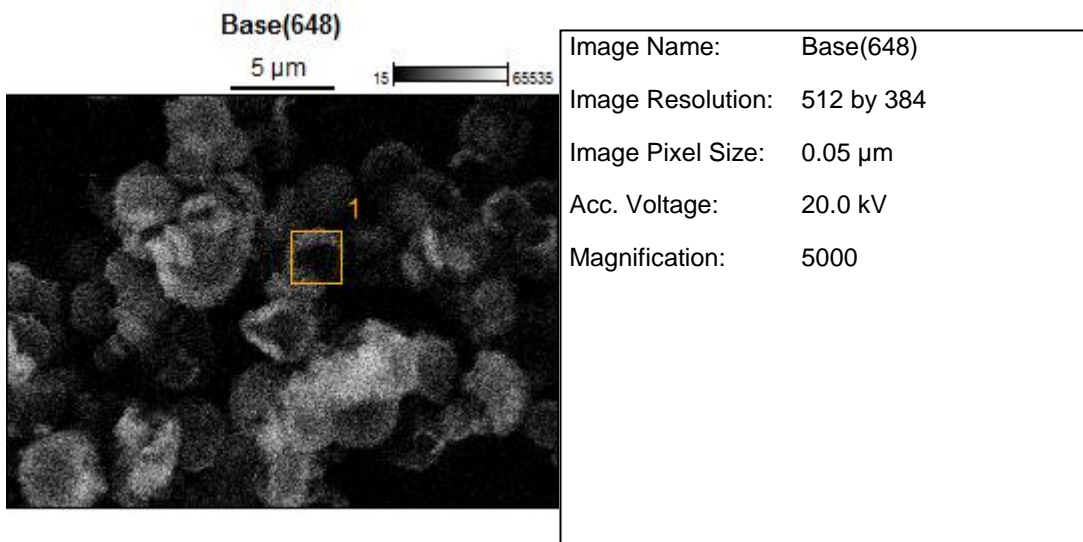


Full scale counts: 34

Base(646)\_pt1

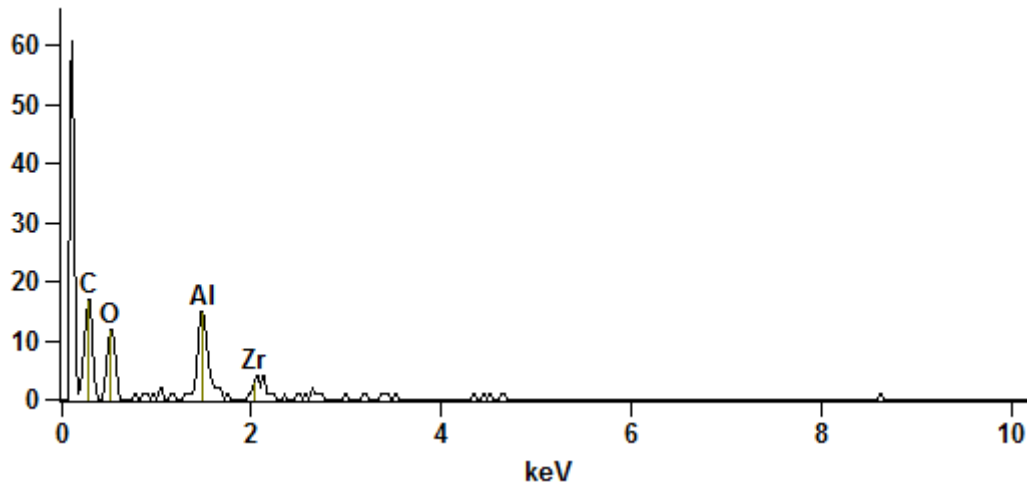


0.04ZrO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub>:



Full scale counts: 61

Base(648)\_pt1



0.06ZrO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub>:

Base(649)

5 μm

15 65535

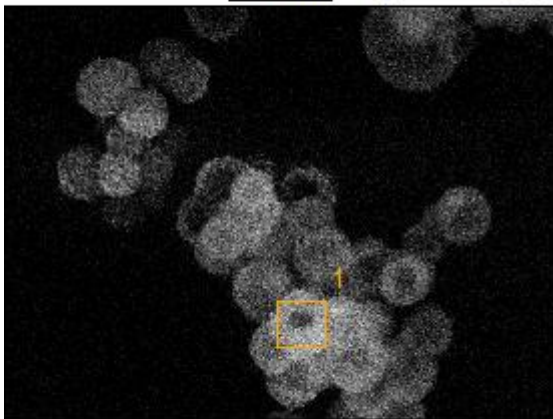
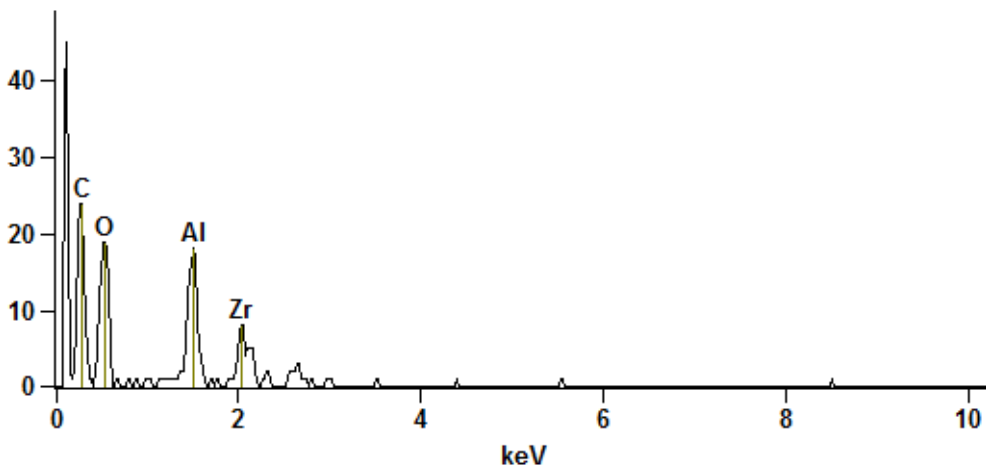


Image Name:	Base(649)
Image Resolution:	512 by 384
Image Pixel Size:	0.05 μm
Acc. Voltage:	20.0 kV
Magnification:	5000

Full scale counts: 45

Base(649)\_pt1



**0.08ZrO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub>:**

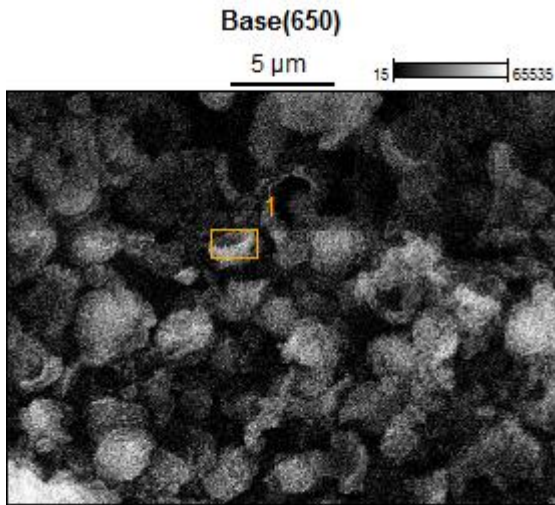
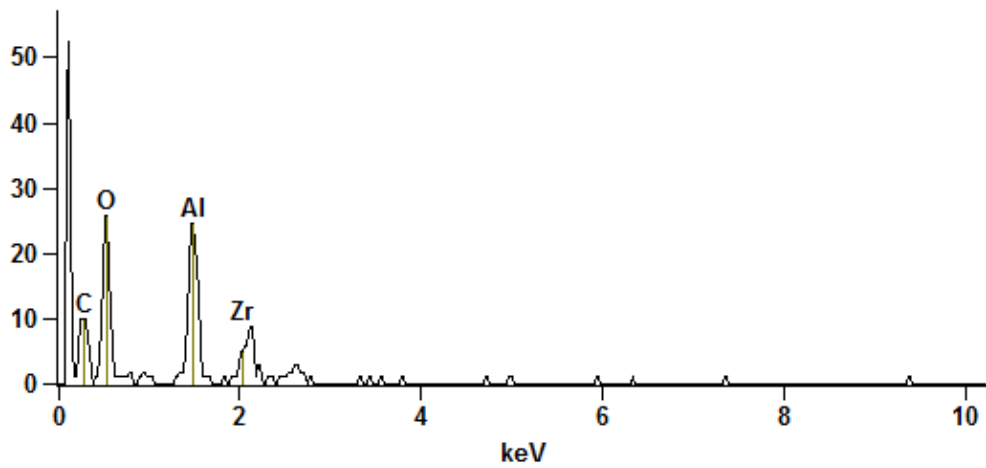


Image Name:	Base(650)
Image Resolution:	512 by 384
Image Pixel Size:	0.05 μm
Acc. Voltage:	20.0 kV
Magnification:	5000

Full scale counts: 53

Base(650)\_pt1



**0.1ZrO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub>:**

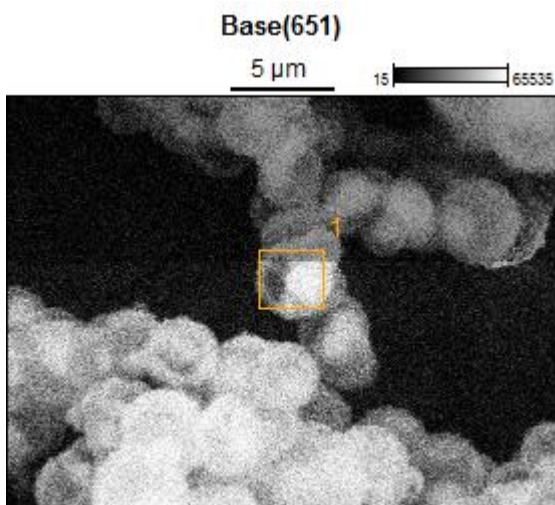


Image Name:	Base(651)
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Acc. Voltage:	20.0 kV
Magnification:	5000

Full scale counts: 51

Base(651)\_pt1

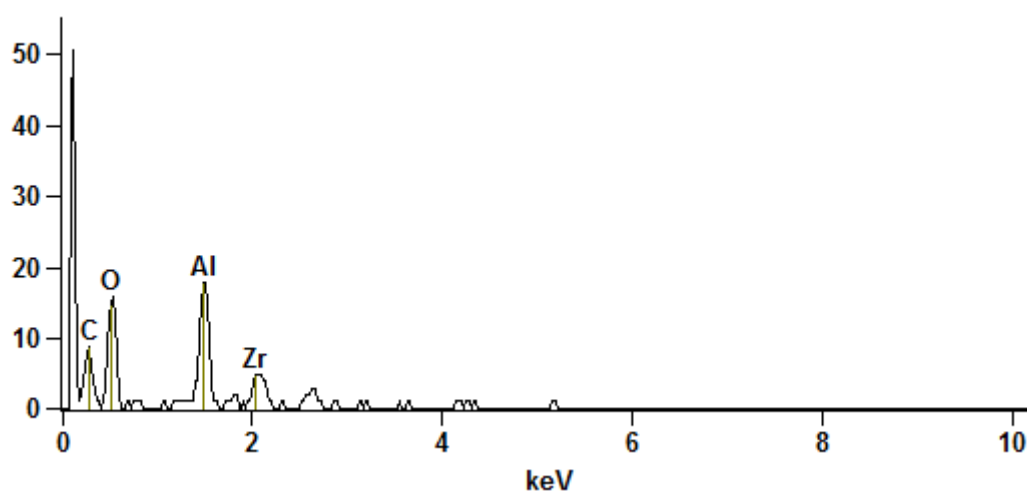


Fig. S3 — EDX data (with corresponding SEM images) of the synthesized aerogels  $XZrO_2$ - $Al_2O_3$ -aerogel ( $X = 0.02, 0.04, 0.06, 0.08, \text{ and } 0.1$ )