[Supporting Information]

Ultrasonic Assisted Exfoliation for Efficient Production of RuO2 Monolayer Nanosheets

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S1. The concentration and yield of RuO$_2$ nanosheets derived from the UV-vis spectroscopy

The equation of the concentration of RuO$_2$ nanosheets is as below.

$$C = \frac{AM_w}{\alpha l}$$

(eq 1)

C, A, M$_w$, α, and l are concentration of the RuO$_2$ nanosheets, absorbance at 360 nm, molar weight of RuO$_2$, the molar extinction coefficient of the dispersed RuO$_2$ monolayers in aqueous solution (7.4 x 10^3 mol^{-1}dm^{3}cm^{-1} at 360 nm)[s1], and the length of cuvette, respectively.

The equation of the yield of the RuO$_2$ nanosheets is as below

$$Y = \frac{AM_w L}{\alpha l m}$$

(eq 2)

Y, L, and m are the yield of the RuO$_2$ nanosheets, an initial volume of aqueous solution, and an initial weight of H$_x$RuO$_2$ layered materials, respectively.

References

S1. K. Fukuda, H. Kato, J. Sato, W. Sugimoto, and Y. Takasu, *J. Solid State Chem.*, 2009, **182**, 2997.
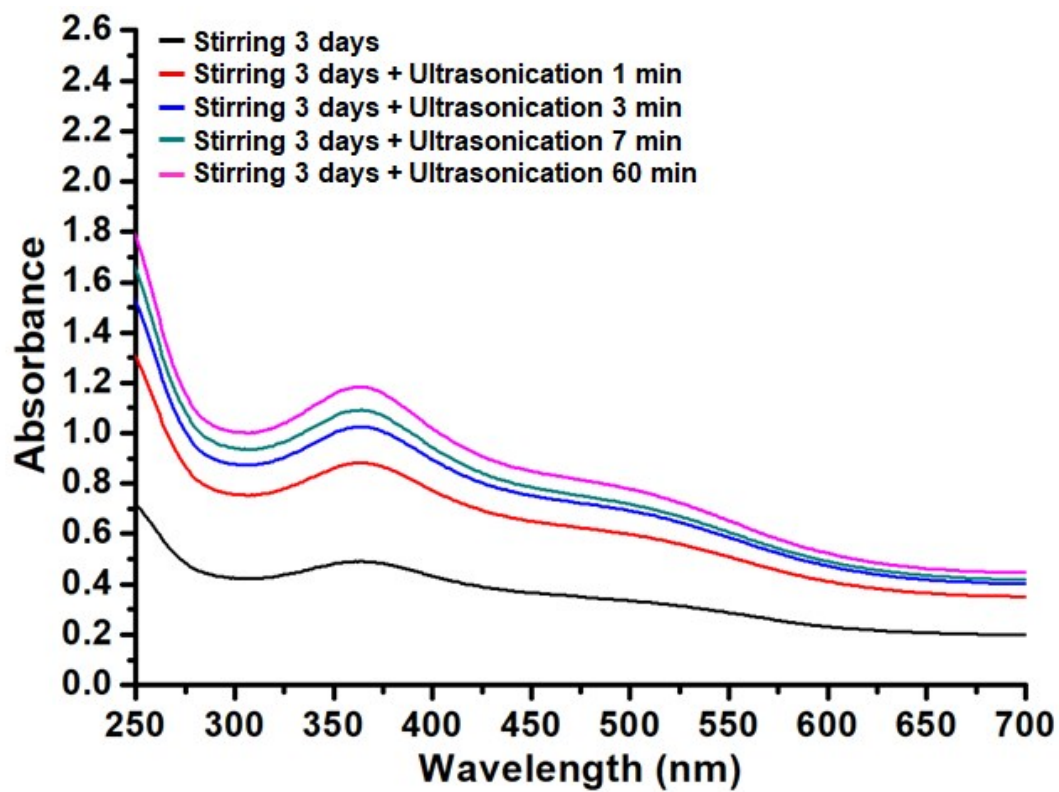
Figure S1. UV-vis absorption spectra of the RuO$_2$ nanosheets contained aqueous solution.

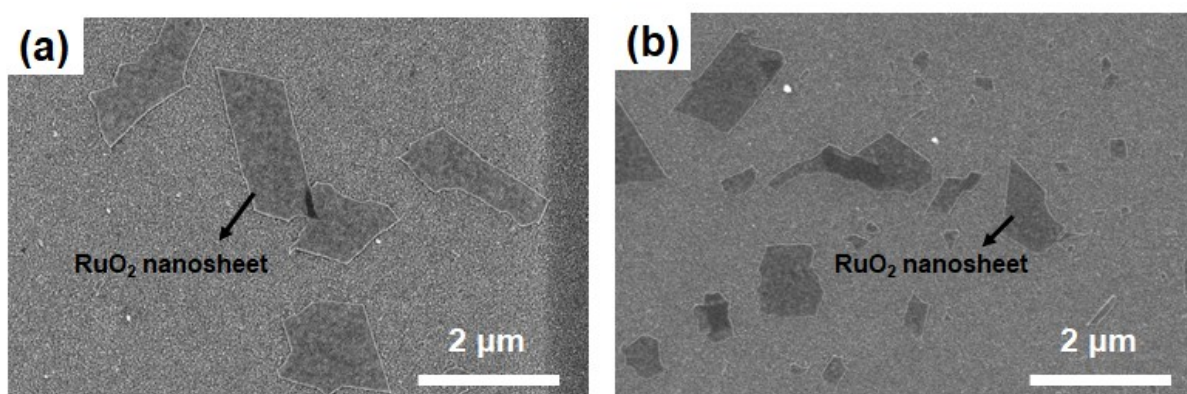**S2. SEM images of exfoliated RuO$_2$ nanosheets**

Figure S2. SEM images of exfoliated RuO$_2$ nanosheets using a) 1 minute and b) 7 minutes of ultrasonication.