Surface modification with lithium silicate to enhance electrochemical performance for high-valence metal oxide compound MnTeMoO$_6$

Xiangyan Zhao $^a$, Bo Li $^a$*, Ji Zhuang $^a$, Chao Liu $^a$, He Zhu $^a$, Ni Xue $^a$, Mei Xue $^b$, Lei Wang $^a$, Xutang Tao $^a$*

$^a$ State Key Laboratory of Crystal Materials, School of Crystal Materials, Shandong University, Jinan, 250100, P. R. China.

$^b$ College of Chemistry, Chemical Engineering and Materials Science, Shandong Normal University, Jinan, 250014, P. R. China

*Corresponding author:

Tel/Fax: 86-531-88364963/86-531-88574518

E-mail address: boli@sdu.edu.cn (Bo Li)
**Fig. S1.** SEM images of (a) MnO, (b) MoO₃ and (c) TeO₂. All raw materials are bought from Shanghai Macklin Biochemical Co., Ltd. The purity is 99.5% for MnO, 99.95% for MoO₃ and for 99.99% TeO₂.

**Fig. S2.** SEM images of MnTeMoO₆ compound synthesized (a) in supercritical water system, and (b) by commonly-used solid state method.
Fig. S3. HRTEM image of S-MnTM@LSO

Fig. S4. SEM mapping images of (a) bare MnTM, (b) MnTM@LSO-1 and (c) MnTM@LSO-3.
Fig. S5. XPS spectra of Si element of (a) bare MnTM, (b) MnTM@LSO-1 and (c) MnTM@LSO-3.

Fig. S6. SEM linear scanning mapping results of (a) bare MnTM, (b) MnTM@LSO-1, (c) MnTM@LSO-3 and (d) S-MnTM@LSO.
Fig. S7. Rate performance of MnTM composites and S-MnTM composites.

Fig. S8. The results of A.C. impedance test under differing temperatures. (a) Bare MnTM, (b) MnTM@LSO-1 and (c) MnTM@LSO-3.