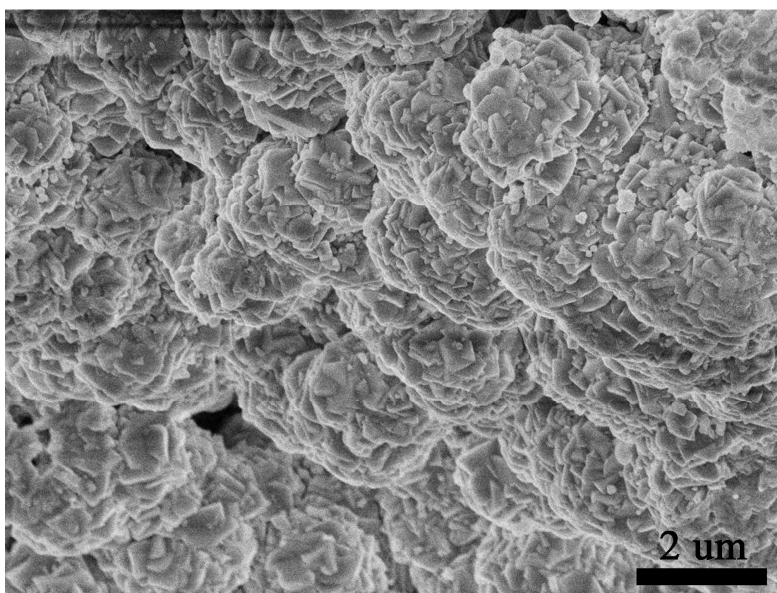


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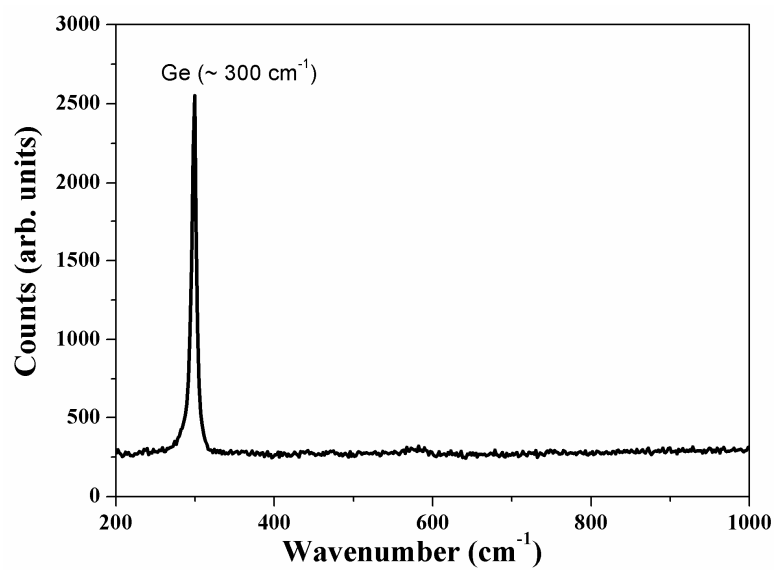
## Supporting Information

### Honeycomb-like Macro-Germanium as High-Capacity Anodes for Lithium-ion Batteries with Good Cycling and Rate Performance

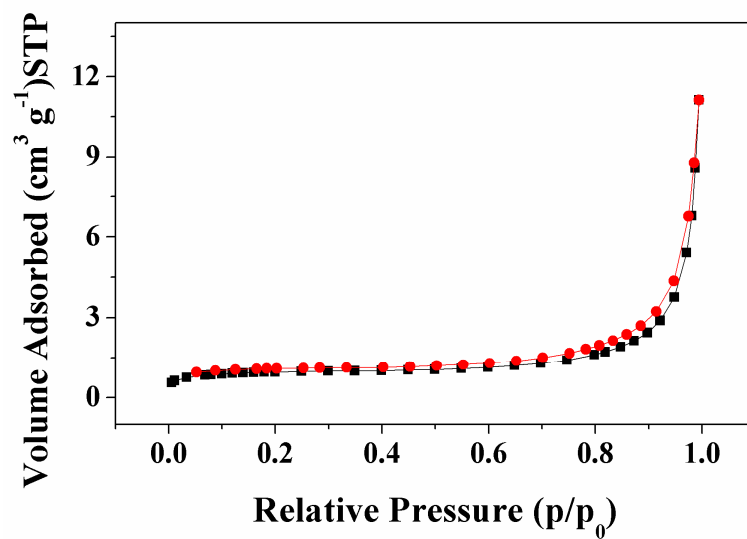
*Jianwen Liang, Xiaona Li, Zhiguo Hou, Tianwen Zhang, Yongchun Zhu\*, Xuedong Yan and Yitai Qian\**



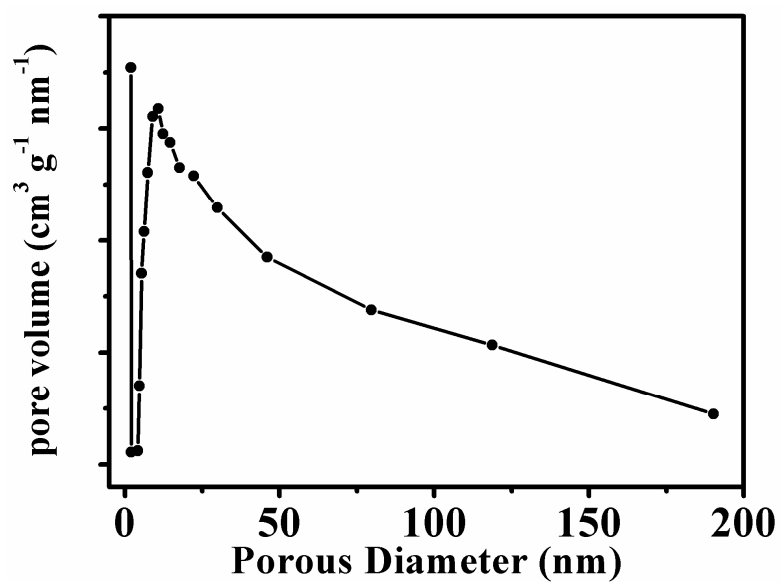
**Figure S1.** SEM image of the initial GeO<sub>2</sub> particle.



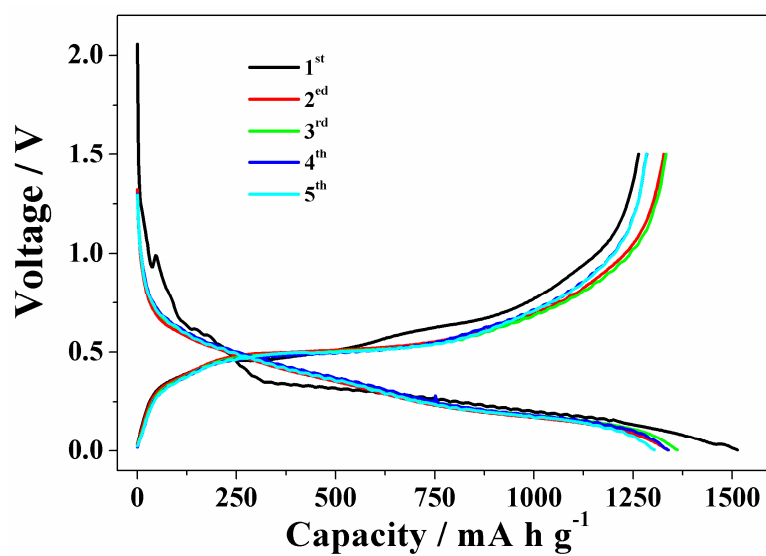
**Figure S2.** Raman spectra of the bulk m/n-p Ge powder.



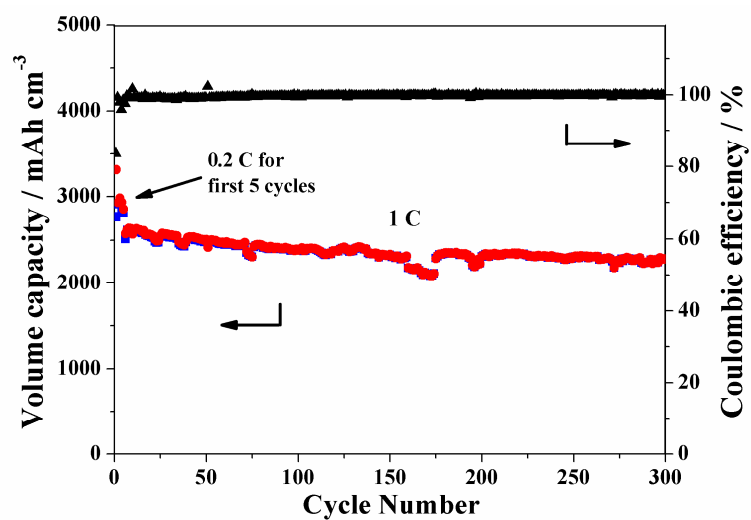
**Figure S3.** Nitrogen adsorption-desorption isotherms of the m/n-p Ge powder.



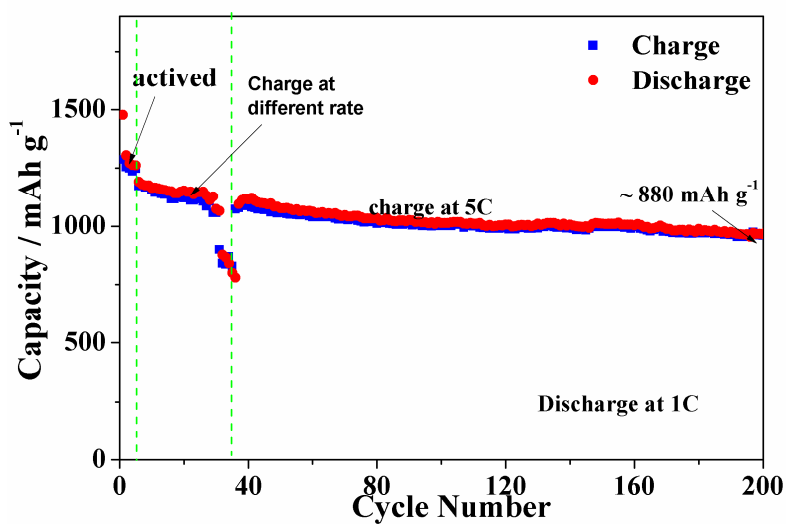
**Figure S4.** BJH Pore size distribution of the m/n-p Ge powder. Differential curve of Figure 2d curve.



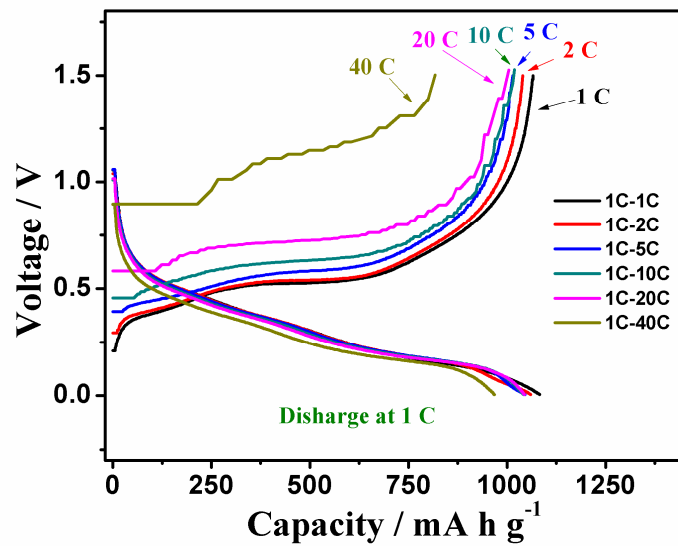
**Figure S5.** The voltage profiles of the m/n-p Ge at first five cycles during the electrode activation process at 0.2 C.



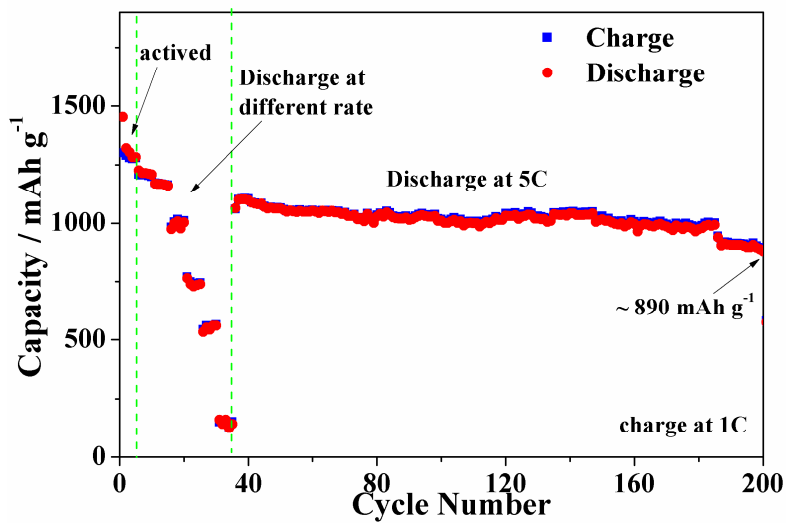
**Figure S6.** Volume capacity and coulombic efficiency of the cell with m/n-p Ge anode at the constant current density of 1 C during 300 cycles.



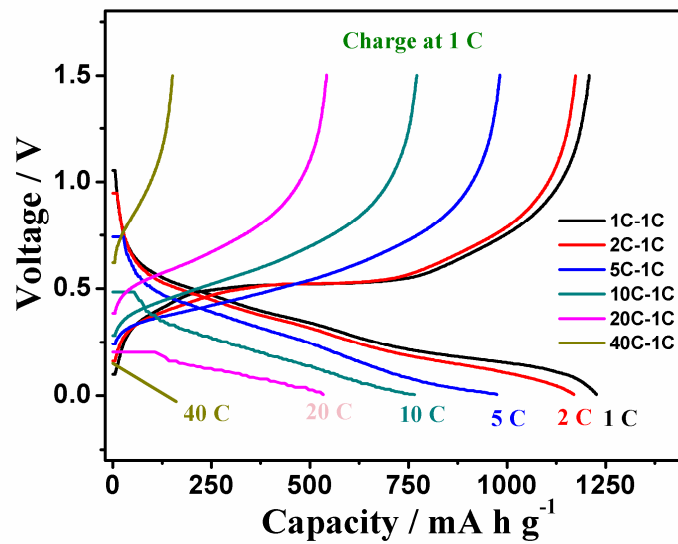
**Figure S7.** The fast charge rate performance for long-term cycling.



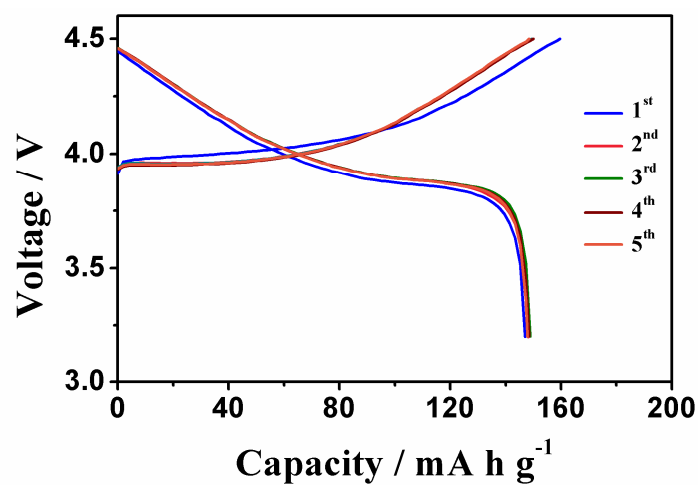
**Figure S8.** The typical galvanostatic discharge-charge curves of m/n-p Ge anode at fast charge rate from 1 C to 40 C and discharged at a constant current density of 1 C.



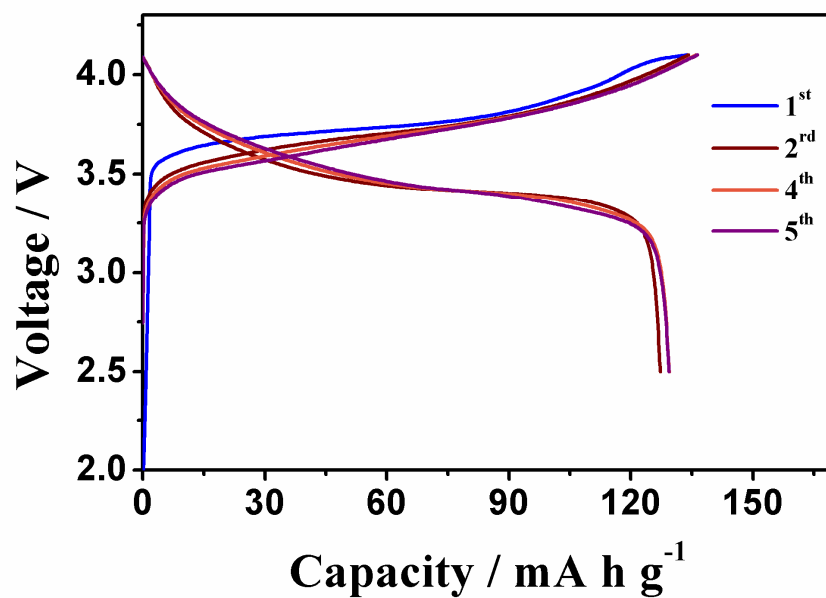
**Figure S9.** The fast discharge rate performance for long-term cycling.



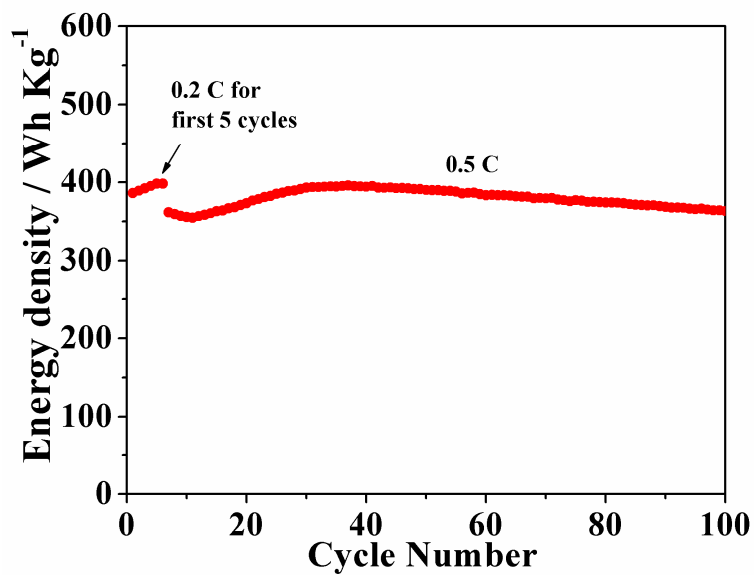
**Figure S10.** The typical galvanostatic discharge–charge curves of m/n-p Ge anode at fast charge rate from 1 C to 40 C and discharged at a constant current density of 1 C.



**Figure S11.** The typical galvanostatic discharge–charge curves of commercial LiCoO<sub>2</sub> electrode at current density of 0.5 C (1 C = 170 mAh g<sup>-1</sup><sub>LCO</sub>).



**Figure S12.** The voltage profiles of the Ge-LCO full cell at first five cycles during the electrode activation process at 0.2 C (1 C = 170 mAh g<sup>-1</sup><sub>LCO</sub>).



**Figure S13.** The discharge energy density of Ge-LCO full cell at the current density of 0.5 C (1 C = 170 mAh g<sup>-1</sup><sub>LCO</sub>).