Synergic Effect of Decoration of Nickel Oxide Nanoparticles on Silicon for Enhanced Electrochemical Performance in LIBs

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Figure S1. FESEM images of (a, b) Pristine Si, (c, d) SNO1 and (e, f) SNO3
Figure S2. BJH pore size distribution plots of (a) pristine Si (b) SNO1 (c) SNO2 (d) SNO3

Figure S3: cycling performance of Pristine Si, SNO1 and SNO3 between 0.01 and 3V.
**Figure S4** FESEM-EDS spectrum of pristine (a, b, c) Si, (d, e, f) SNO1 and (g, h, i) SNO3 electrodes after cycling

**Table S1.** Comparison of the silicon composites for their electrochemical performance

| No | Current density (mAg\(^{-1}\)/C rate) | Capacity mAhg\(^{-1}\) | Material | Reference |
|----|--------------------------------------|------------------------|----------|-----------|
| 1  | 50                                   | 842.59                 | NiO@Si   | ACS Appl. Mater. Interfaces \(^1\) |
| 2  | 100                                  | 1200                   | SiO\(_2\)@NiO | RSC Adv\(^2\) |
| 3  | 0.1C                                 | 2849                   | Ni-Li\(_2\)O@Si | RSC Adv\(^3\) |
| 4  | 100                                  | 700                    | Ni/SiO\(_2\) | Adv. Funct. Mater\(^4\) |
| 5  | 750                                  | 1911                   | Fe\(_2\)O\(_3\)-Si | JMCA |
| 6  | 100                                  | 985                    | Si/Ti\(_2\)O\(_3\)/rGO | ACS Appl. Mater. Interfaces\(^5\) |
| 7  | 50                                   | 1681                   | Si-G     | ACS Appl. Mater. Interfaces\(^6\) |
| 8  | 1/10 C                               | 1074                   | Silicon@C | AngewandteChemie\(^7\) |
| 9  | 100                                  | 828                    | Si/C Yolk/Shell | JMCA \(^8\) |
| 10 | 200                                  | 832                    | Si @ Graphite/carbon | Sustainable Energy & Fuels\(^9\) |
| 11 | 1C                                   | 1565                   | Si@void@C | ChemElectroChem\(^10\) |
| 12 | 100                                  | 774.1                  | Tin-Oxide/Silicon | Chemistry select\(^11\) |
| 13 | 20                                   | 2162                   | Si@NiO   | Present work |

[^1]: AC.S Appl. Mater. Interfaces
[^2]: RSC Adv
[^3]: RSC Adv
[^4]: Adv. Funct. Mater
[^5]: ACS Appl. Mater. Interfaces
[^6]: ACS Appl. Mater. Interfaces
[^7]: AngewandteChemie
[^8]: JMCA
[^9]: Sustainable Energy & Fuels
[^10]: ChemElectroChem
[^11]: Chemistry select
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