Electronic Supplementary Information (ESI)

Mesoporous NiO nanoarchitectures for electrochemical energy storages: influence of size, porosity, and morphology

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Supplementary S1:

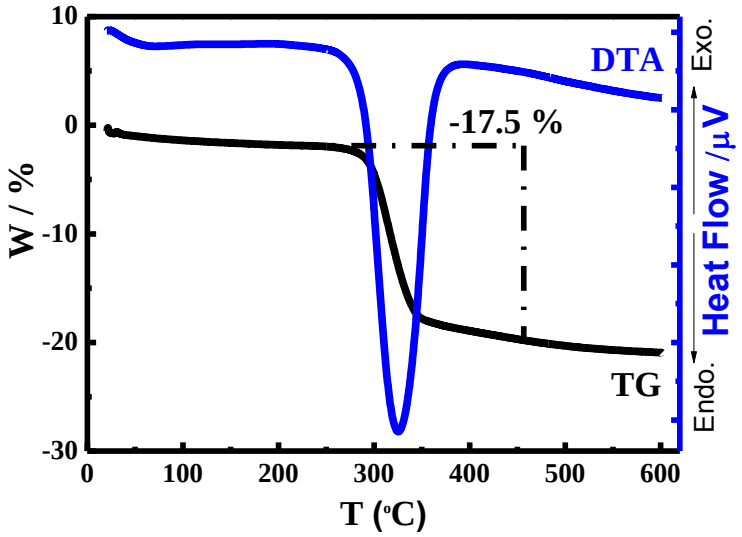

Figure S1. TG-DTA of NiO Nanoplatelets fabricated by microwave assisted method.

Supplementary S2:

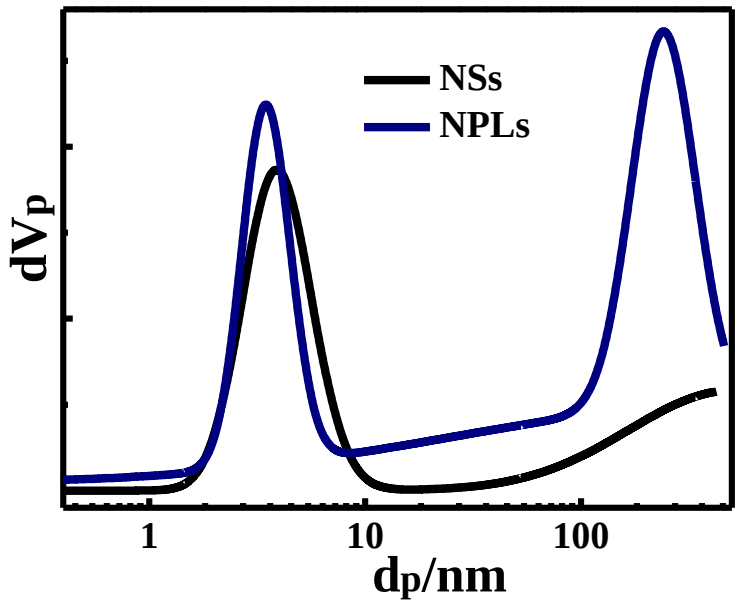

Figure S2. The pore distribution calculated by the NLDFT model of mesoporous NiO samples.

Supplementary S3:

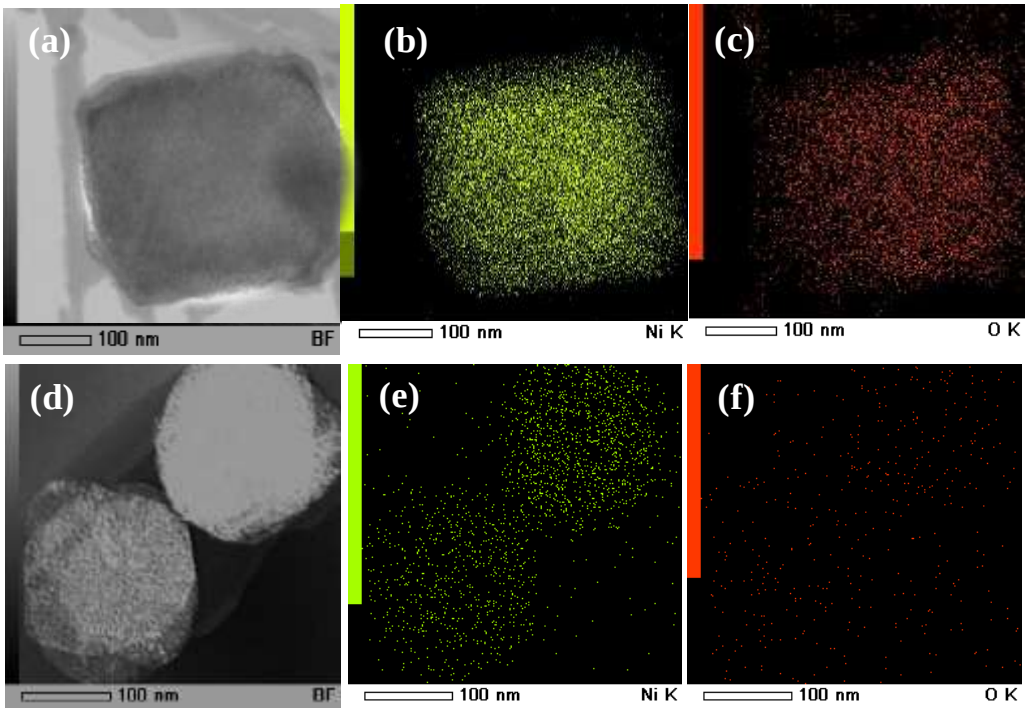

Figure S3. STEM-EDS mapping of mesoporous NiO nanostructured, (a, and d) STEM images, (b, and e) Nickel atoms, and (c, and f) oxygen atoms of NiO nanoslices, and NiO nanoplatelets, respectively.

Supplementary S4:

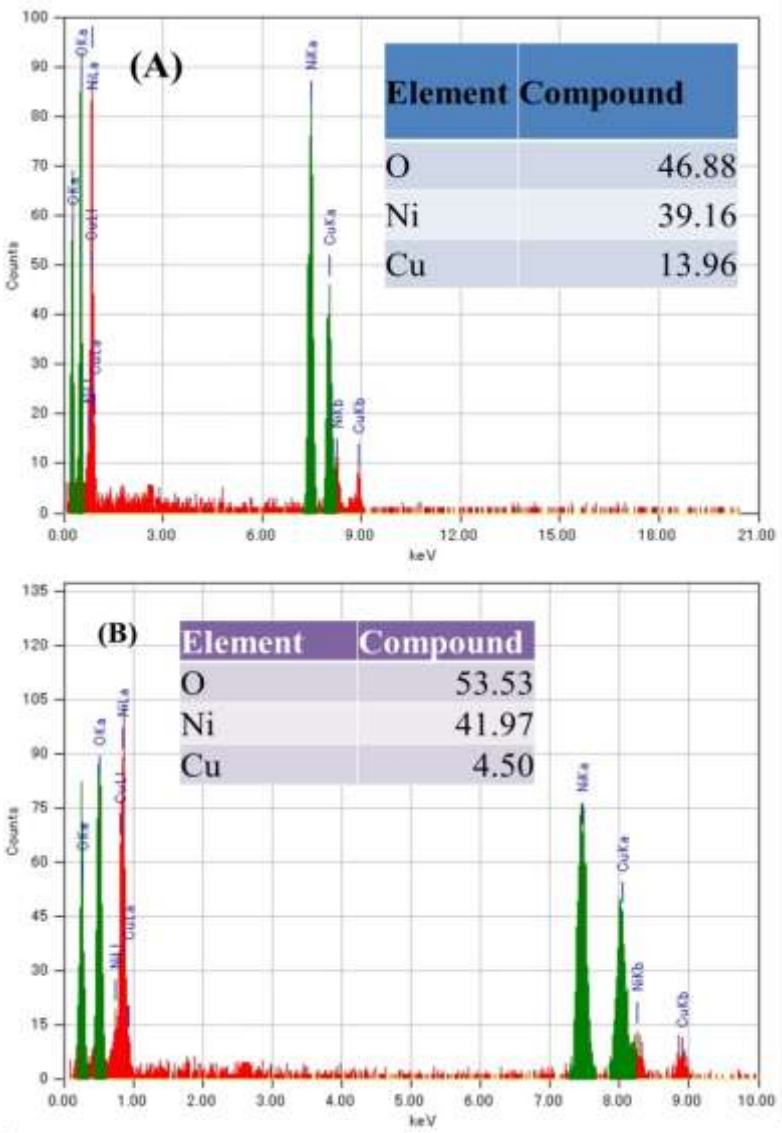

Figure S4. EDS analysis of NiO nanoparticles (A) nanoslices and (B)nanoplatelets.

Supplementary S5:

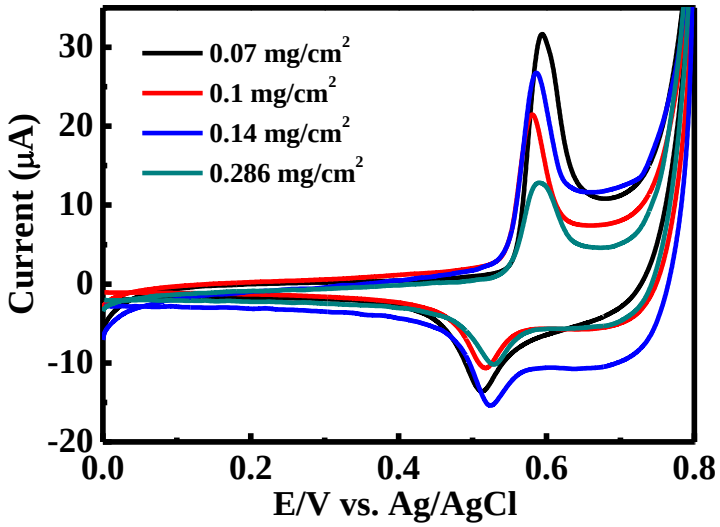

Figure S5. Cyclic voltammetric measurements of different mass loading of active NiO NPLs at scan rate 10 mV/s.

Supplementary S6:

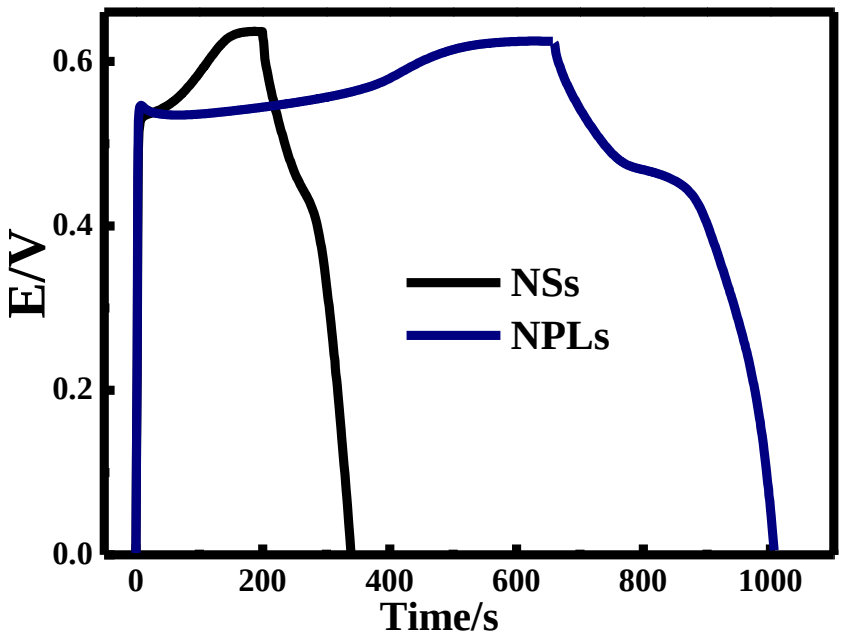

Figure S6. Galvanostatic charge/discharge curves of NiO nanoparticles at discharge current 2A/g.

Supplementary S7:

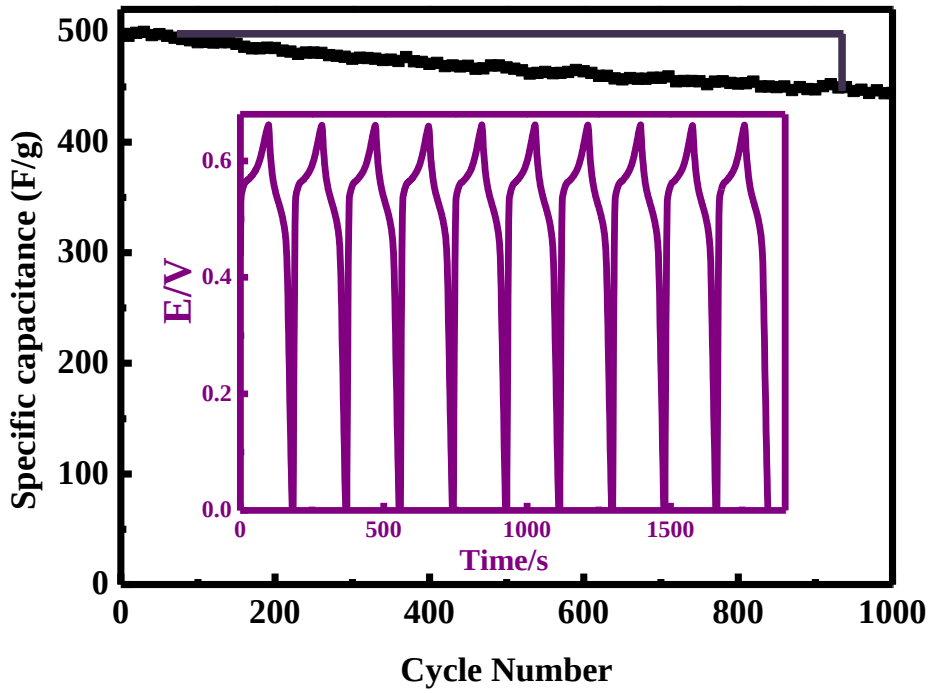

Figure S7. Cycling performance of mesoporous NiO nanostructured in 2 M NaOH at 2 Ag^{-1} prepared through hydrothermal method. [34]

Supplementary S8:

Table S8

Comparison of the capacity of the our mesoporous NiO NPs and other materials in literatures

Material	Specific capacitance	Energy density	Power density	Mass loading	Reference
NiO nanoplatelets	1361 Fg^{-1} at 1 mVs^{-1}	63.8 Wh/kg	13.2 kW/kg	0.14 mg/cm^2	In this work
NiO Nanoslices	685 at 1 mVs	29.04 Wh/kg	4.74 kW/kg	0.14 mg/cm^2	In this work
NiO nanocolumns	390 F/g at 5A/g 686 F/g at 1A/g	---	---		(25)
NiO nanoslices	176 F/g at 5A/g	---	---		(25)
NiO nanoplates	285 F/g at 5A/g	---	---		(25)
NiO platelets	286.7 F/g at 1A/g	---	---		(34)
NiO flower	381 F/g at 1A/g	---	---		(21b)
NiO slices	86 F/g at 1A/g	---	---		(21b)
NiO nanoparticles	235 F/g at 1A/g	---	---		(21b)
C@NiO	988.7 F/g at 0.5 A/g	---	---		(36)
$Ni(OH)_2$	755 F/g at 1A/g			4 mg/cm^2	(20)
NiO/Ni Nanocomposites	905 F/g at 1A/g	60 Wh/kg	10 kW/kg	40 mg/cm^2	(28)
NiO Flower	370 F/g at 2A/g	50 Wh/kg	4.4 kW/kg	---	(21a)
Au/MnO_2	1,145 F/g at 50mV/s	---	---	4 mg/cm^2	(2)
Au/MnO_2 Core/Shell	1020 F/g at 5 mV/s	---	---	0.1 mg/cm^2	(37b)