

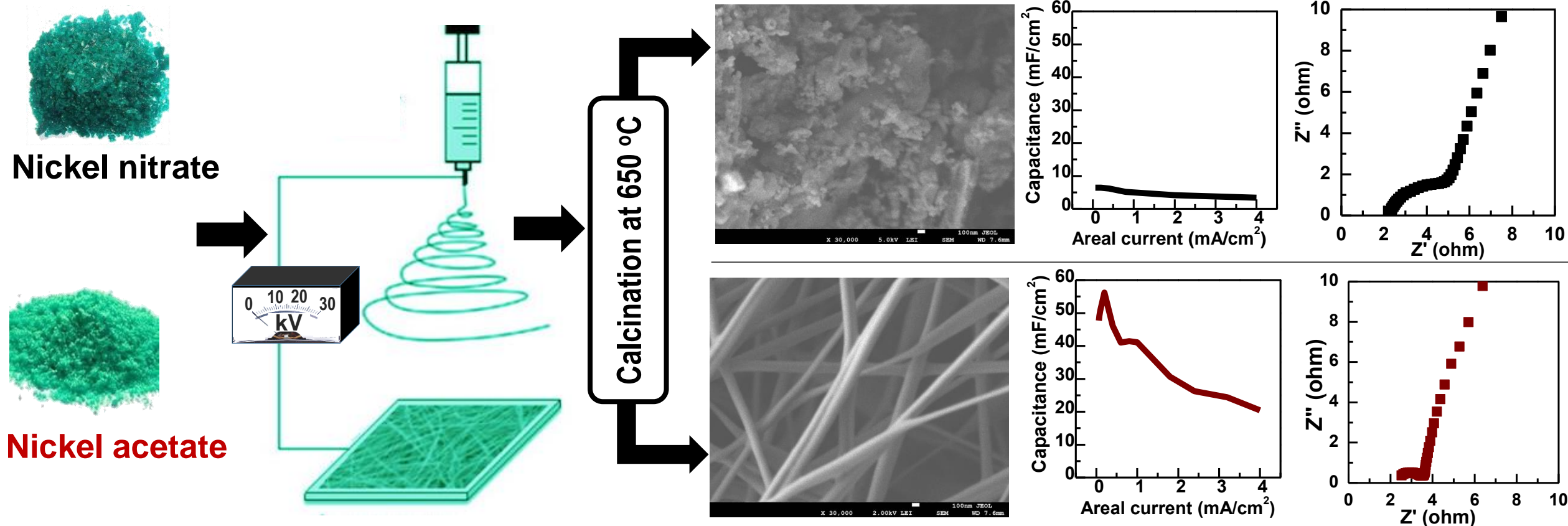
Effects of Electrospinning Parameters on Morphological and Electrochemical Properties of Nickel Oxide Nanofibers for Flexible Supercapacitors



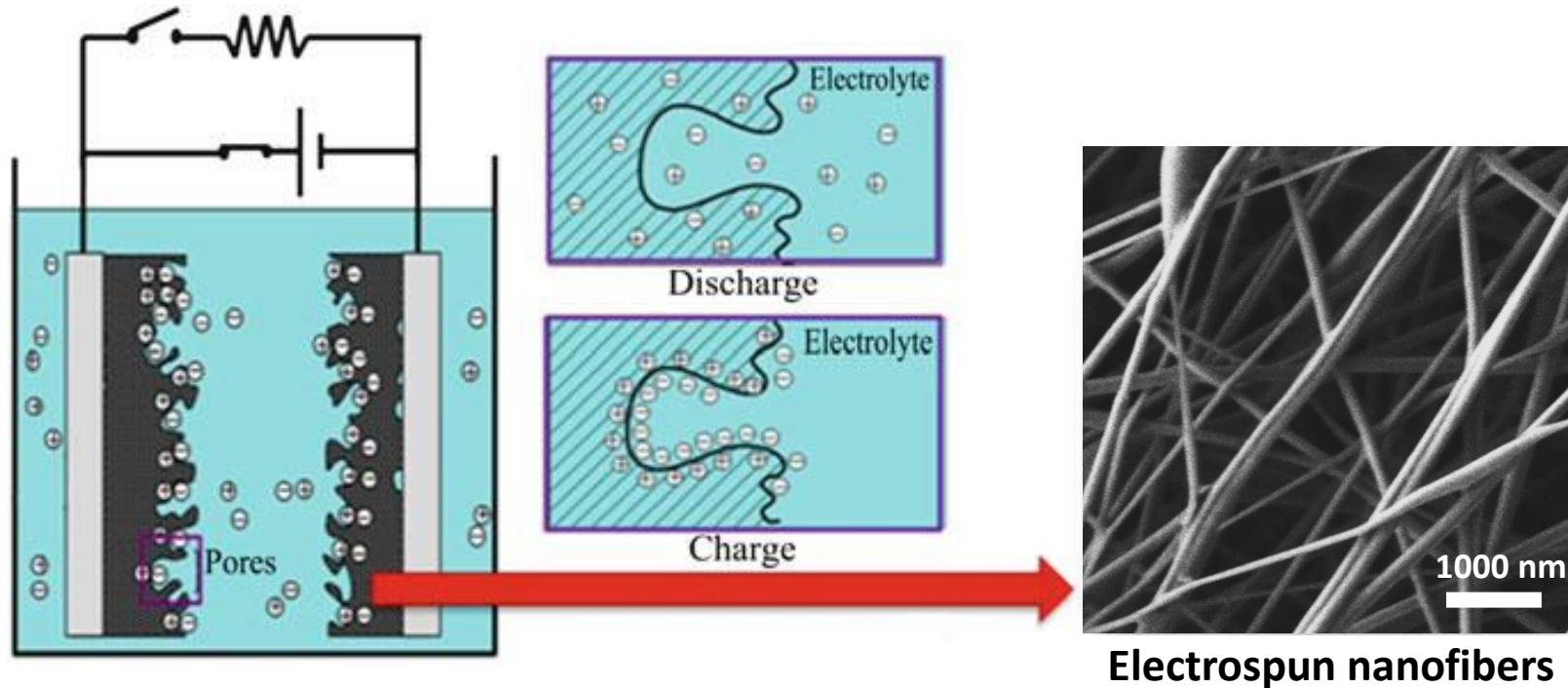
Nuha A. Alhebshi ¹, Reziwanguli Aihemaituoheti ¹ *

¹ Department of Physics, King Abdulaziz University, Jeddah 21589, Saudi Arabia

* Email address: rezwane428@gmail.com

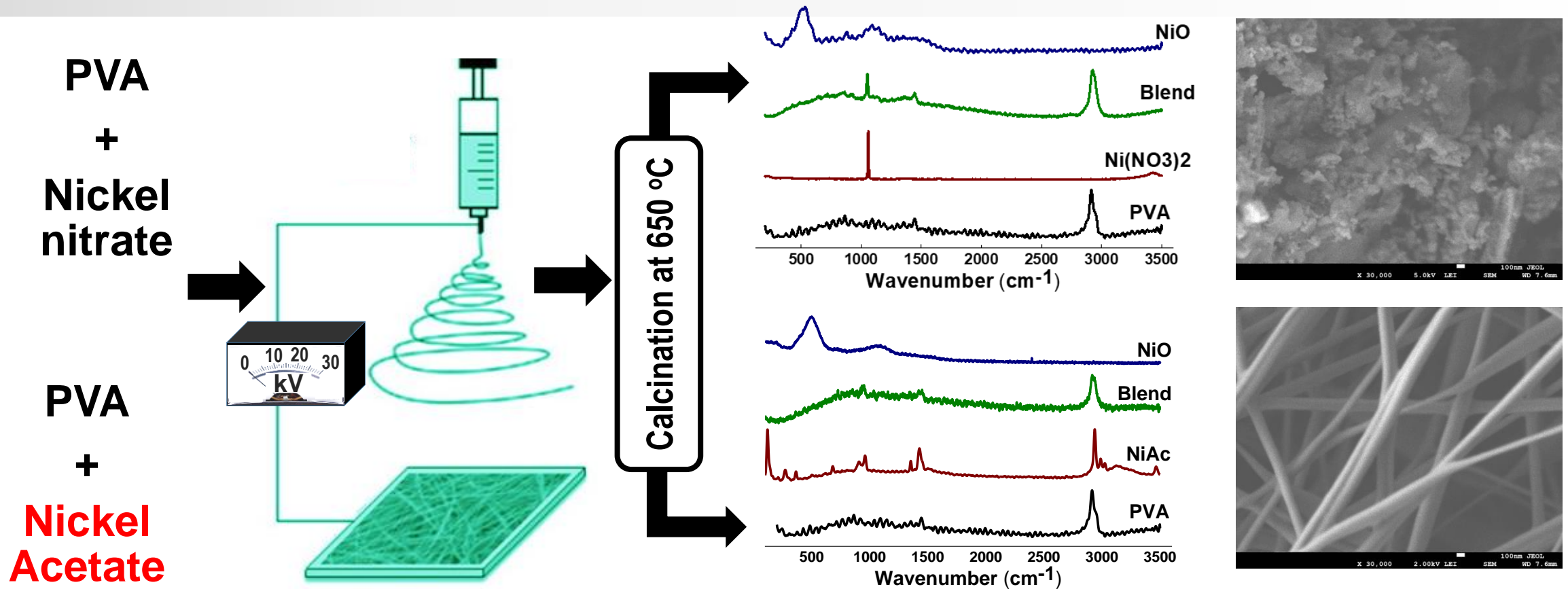


Introduction



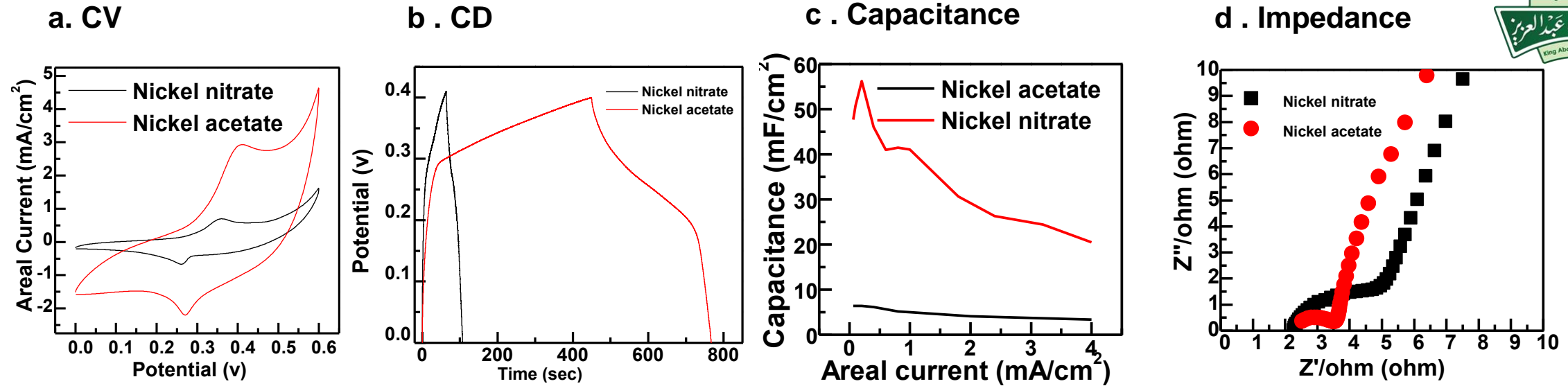
- supercapacitors (SCs) are energy storage devices which cover advantages of both battery and capacitor
- Electrode is the key factor to influence overall performance of the SCS.
- Electrospinning is a simple and versatile technique to produce a continuous fiber mesh with high surface area to volume and high porosity.

Materials Synthesis and Characterization



- Electrospinning parameters such as voltage and concentration were optimized to prepare nanostructured nickel oxide (NiO).
- Using **nickel acetate** as a precursor produces NiO nanofibers as shown by scanning electron microscopy (SEM) image and Raman spectra.

Electrochemical Supercapacitors Performance



- Peaks in cyclic voltammetry curves confirm that energy is stored on NiO electrode | KOH electrolyte by redox reaction mechanism.
- Capacitance values at a range of electrical current are calculated from the galvanostatic charging-discharging curves.
- NiO nanofibrous electrode made from **nickel acetate** display better electrochemical performance in terms of capacitance and charge transfer resistance.