Title: **Bacterial Nanocellulose for Batteries**

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Our main goal of our studies is to fabricate an electrode with good electrochemical properties and potential to be used for batteries. This will be prepared with a nickel coating over the nanofibers of a bacterial cellulose with a 3D network. With this type of structure, we want to obtain a large surface electrode by taking advantage of the nanocellulose porosity. To achieve that, the desired coating has to be homogenous and thin. To rationalize the optimization, this study aims at establishing a relationship between the coated structure and the electrochemical characteristics of samples prepared at different deposition temperatures and times. This will help to understand the deposition process. This analysis was carried out thanks to the measure of the impedance results obtained, reinforcing it with the other characterizations such us cyclic voltammetry, scanning electron microscope and X-ray diffraction. The properties of our system as a capacitor have been studied, more specifically a type of supercapacitor, an EDLCs. Capacitors are widely used in electrical systems. Obtaining this supercapacitor, apart from having the typical properties of supercapacitors, will have a great flexibility. In this work we will study the deposition conditions in which a capacitor with the best properties is obtained. This will also serve as a basis for the future elaboration of electrodes for sensors and batteries. To evaluate which are the best conditions its capacities will be measured, capacity of a system to store electrical energy, and with measures of impedance, degree in which a circuit resists the flow of electrical current if a certain voltage is applied, that it will allow us to take measurements of internal resistance, load exchange resistance and double layer capacitance.