**Title:** **Electrospun Nanofibers of High Performance Electret Polymers for Tactile Sensing and Wearable Electronics**

Prof. Dr. Ashok VASEASHTA

International Clean Water Institute, Manassas, VA USA

Institute of Electronic Engineering and Nanotechnologies “D. Ghitu”, Chisinau Moldova, and

Institute of Biomedical and Nanotechnologies, Riga Technical University, Riga, Latvia

**Abstract:** Bio-Derived Polymers exist in abundance and display diverse chemical compositions, tunable properties, such as high k-dielectric, processability, excellent biocompatibility and biodegradability, with no to minimum toxicity. Such features provide them with capability for futuristic ubiquitous application in networked wearable and tactile electronics as membranes and devices to efficiently scavenge and store operational power from their working environment. Based on our previous work on e-textile, force protection clothing, wearable electronics and electrospun nanofibers, we provide an overview of the recent progress and future applications in textile, e-textile, tactile sensing (sensors, actuators, transistors) and triboelectric devices (batteries, supercapacitors, triboelectric nanogenerators) fabricated using bio‐derived natural materials. The diverse structures and fabrication processes of three typical biopolymers provide sustainable pathways that would enable viable self‐powering schemes in societally‐pervasive applications. Additionally, challenges and potential research opportunities are analyzed and described.

**Keywords**: biopolymers; tactile; triboelectric; wearable; sensors; high k-dielectric