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Polymer Fibers Embedded with Iron-Based Nanoparticles with Potential for Sensing and Environmental Applications

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Zerovalent iron nanoparticles emerged as a potent reducing agent against oxidized pollutants such as organochlorides, nitrates, and nitrites, among others. However, these nanoscale iron particles are not stable reducing agents in the environment making it challenging to maintain Fe in its reduced state. The main objective of this research is to prepare polymer fibers embedded with iron-based nanoparticles by mean of the electrospinning technique. These materials will be characterized by Scanning electron microscopy (SEM), Energy-dispersive spectroscopy (EDS), X-ray diffraction (XRD), and Raman spectroscopy, and evaluated in sensing and remediation applications.

- Zerovalent Fe nanoparticles with PAA/PVA 10% (up), and electrospun fibers (down).

