Materials & Chemicals

STRETCHABLE PIEZOELECTRIC BIOCRYSTAL THIN FILMS

WARF: P230250US01

Inventors: Xudong Wang, Jun Li

The Invention

UW-Madison researchers have developed an amino acid-based piezoelectric biocrystal thin film that offers tissue-compatible omnidirectional stretchability with unimpaired piezoelectricity. The stretchability was enabled by a truss-like microstructure that was self-assembled under controlled molecule-solvent interaction and interface tension. Through the open and close of truss meshes, this large scale biocrystal microstructure was able to endure up to 40% tensile strain along different directions while retaining both structural integrity and piezoelectric performance. Built on this structure, a tissue-compatible stretchable piezoelectric nanogenerator was developed, which could conform to various tissue surfaces, and exhibited stable functions under multidimensional large strains. This work presents a promising solution that integrates piezoelectricity, stretchability, and biocompatibility in one material system, a critical step toward tissue-compatible biomedical devices.

Additional Information

For More Information About the Inventors

- Xudong Wang

Tech Fields

- Materials & Chemicals : Biochemicals & biomaterials

For current licensing status, please contact Michael Carey at mcarey@warf.org or 608-960-9867