

# Development of Flexible Mechanoluminescent Polymer Doped Nanofibers

This technology involves the production of flexible, and thermophysically stable mechanoluminescent (ML) fibers through forcespinning of Polyvinyl-difluoride (PVDF) nanofibers. These fibers possess high mechanical strength and has wide range of applications across various industries.

## Problem

Accidents happen, processes fail and systems occasionally breakdown, causing industries to lose millions of dollars and which may even lead to the collapse of some industries. The early detection, and prompt response to these errors are often overlooked and not factored into the system design.

## Solution

This invention produces flexible mechanoluminescent (ML) polymer doped fibers which glow to signal attention to be paid to an error or irregularity in a particular process at a time. These fabric are made of Polyvinyl-difluoride (PVDF) nanofibers which are relatively less costly, long lasting and durable as it possesses high mechanical strength and thermophysical stability up to 400°C. Not only is this technology applicable for safety purposes, but it can also be used in display devices, detection and localization of damages in aircrafts, spaceships, and as a layer component in light emitting diodes.



## Value Proposition

This invention is the method of producing brightly luminescent glowing PVDF nanofibers. These fibers are durable, possess high mechanical strength and flexibility with thermophysical stability up to 400°C.

## Competitive Advantages

- High flexibility
- Ease of manufacturing
- Lower cost of production since less rare-earth complexes are needed
- Higher surface area which enhances ML response

## Status of Development

- Technology Readiness Level (TRL): 4
- Seeking implementation and research advancement partners

## IP Status

- Patent pending: PCT/IB2018/056854, US16/644,686

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