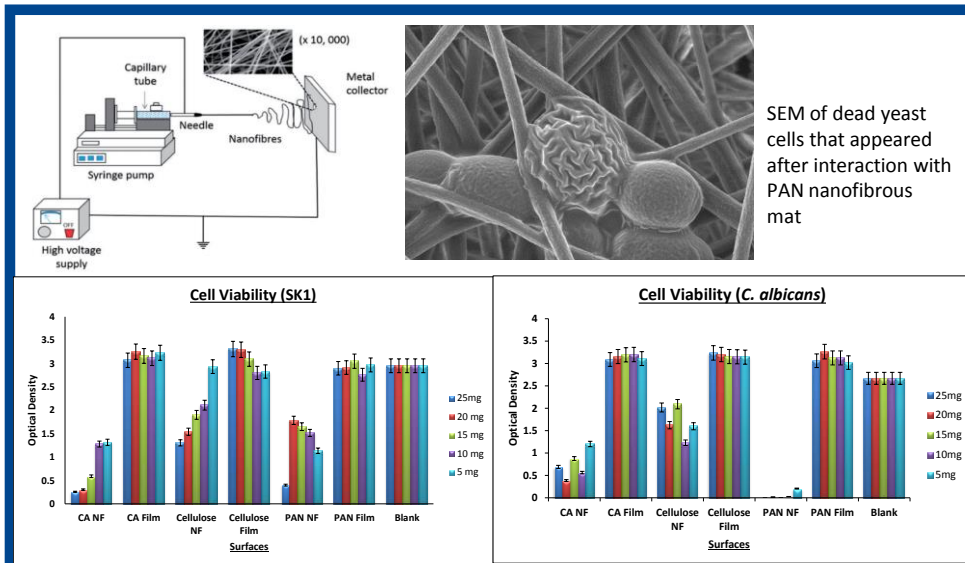


Arifa Parveen

Department: Nanoengineering

Title: “Effect of Electrospun Nanofibers on Growth Behavior of Fungal Cells”

Major Professor: Dr. Lifeng Zhang



RESEARCH QUESTIONS / PROBLEMS:

- Electrospun nanofibers have been integrated in commercial products and exposed to the nature. As a relatively new material to the nature, it is unclear how the microorganism in nature interact with these electrospun nanofibers. This project is to investigate how electrospun nanofibers affect the growth of natural microorganism particularly fungal cells.

METHODS:

- Electrospinning/aligned electrospinning
- Create electrospun nanofibers with different material, size, and topological feature
- Viability test of model fungal cells on prepared nanofibrous mats

RESULTS / FINDINGS:

- Electrospun nanofibrous mats demonstrated inhibition effect on fungal cell growth.
- For *Candida albicans*, polyacrylonitrile (PAN) nanofibrous mat showed more inhibition effect than cellulose acetate (CA) nanofibrous mat while for *SK1*, CA showed more inhibition effect.
- Electrospun nanofibrous mat with random deposited fibers, smaller size fibers, and nanoporous fibers showed respectively more inhibition effect on the growth of fungal cells compared to their counterparts.

SIGNIFICANCE / IMPLICATIONS:

- The findings in this research helps to develop a new antifungal material without using any antifungal agents.