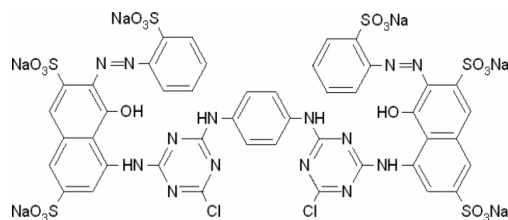
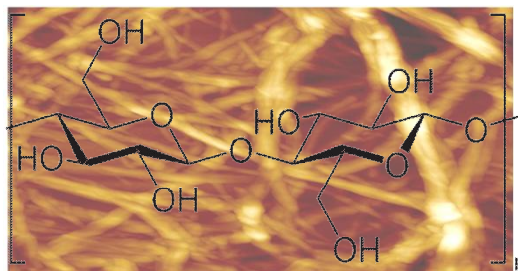




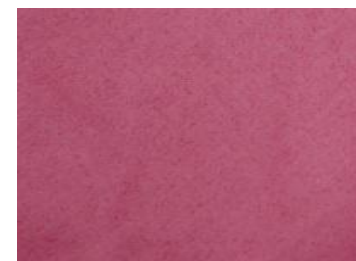
# Novel, Sustainable and Cost-effective Textile Dyeing Techniques Using Nanocellulosic Fibers



Dye molecules



Nanocellulose



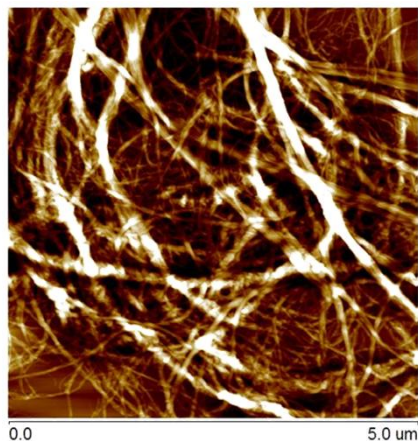
Fabric dyed with nanocellulose

Nanocellulose team: Dr. Yunsang Kim, Raha Saremi (PhD student), Eliza Lee (Department TMI), Lauren L. Tolbert (Undergraduate student).

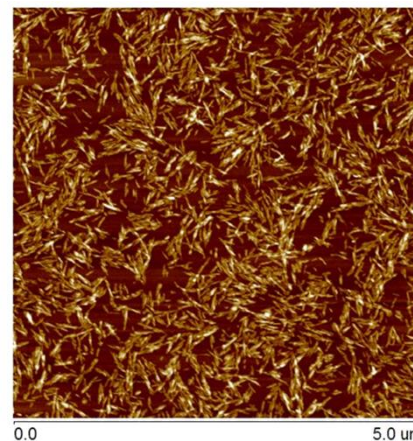


## Problem:

Conventional wet dyeing process generates large volumes of waste water, leading to negative environmental impacts



Microfibrillated  
cellulose



Nanocrystalline  
cellulose

## Goal:

This project will develop innovative fabric dyeing processes using colored nanocellulose that permanently binds to textile surface, which will greatly reduce the energy and water needed for textile dyeing



## Work in progress:

- fabrication of nanocellulose
- synthesis of colored nanocellulose
- kinetic study of dyeing process using nanocellulose
- investigation of nanocellulose adhesion on various textile surfaces

