3D PRINTING WITH REINFORCED CERAMICS

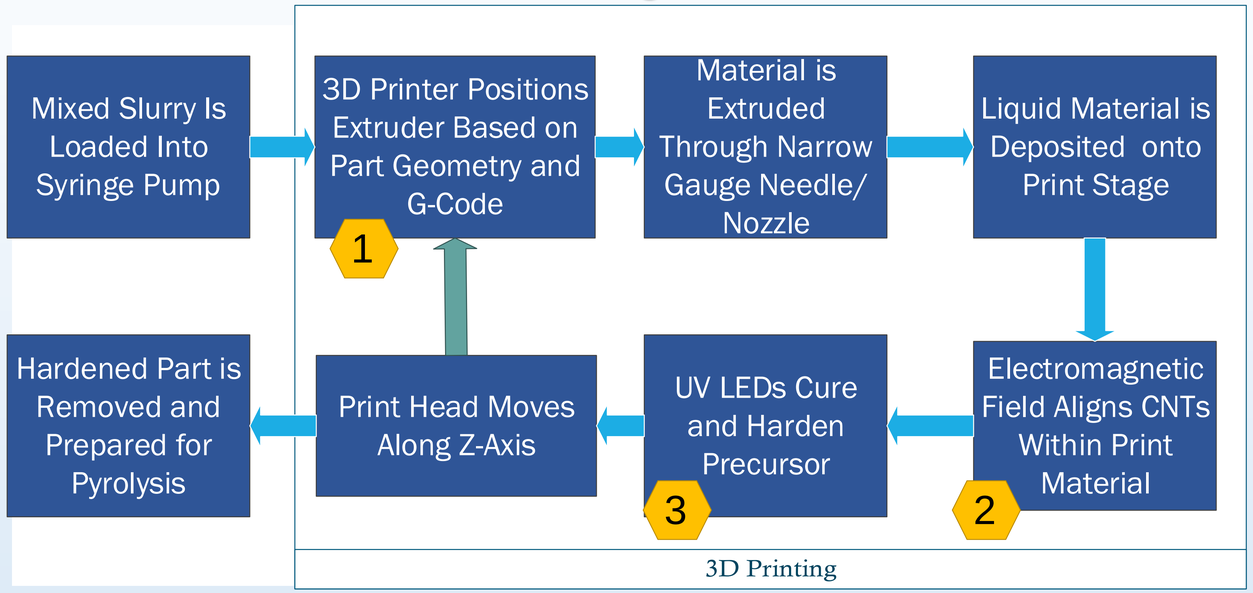
Problem Statement

There is currently no process or product that can additively manufacture CNT reinforced polymer based ceramics

Objectives

- Modify an existing 3D printer in order to print a polymer based ceramic material with embedded CNT
- Meet all customer requirements with regard to material performance and additional printer features

3D Printing Process



Nanotube Alignment

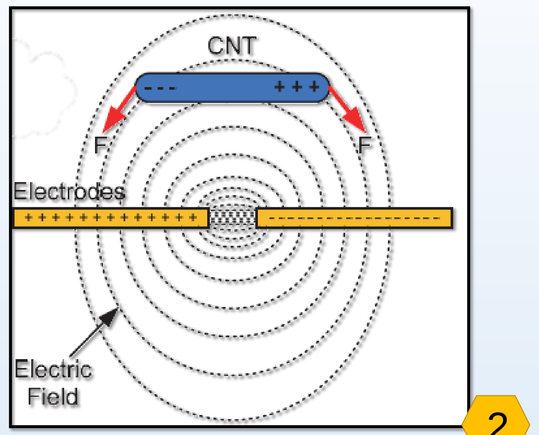


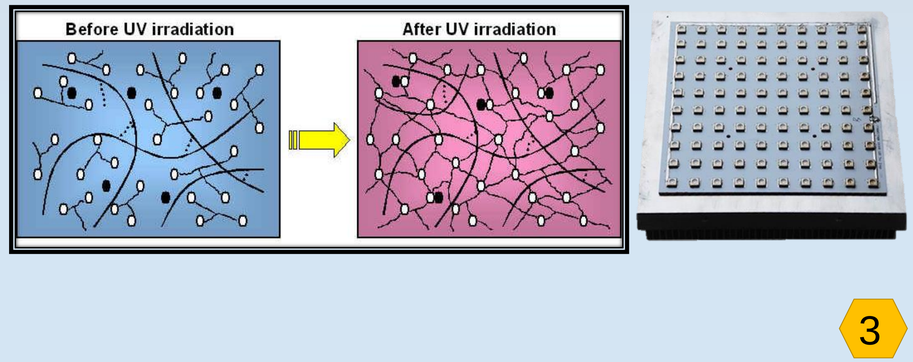
Image Credit: W. Xue and P. Li of WSU

Challenges and Expectations

- **Technical Challenges:**
  - Working with specialized print material slows down the project completion
  - Finding adequate components is requiring high levels of research and testing
- **Expected Result:**
  - Being able to print a simple shape by the end of Spring 2015
  - Have features comparable to current means of additive manufacturing

TAZ4 3D Printer

Polymer Curing



Team 19

Ernest Etienne
Cody Evans
Sonya Peterson
Daphne Solis
Basak Simal
Sam Yang

Sponsors:
Dr. Cheryl Xu
Dr. Wei Guo
Dr. James Huang