



Dr. Saad A. Khan

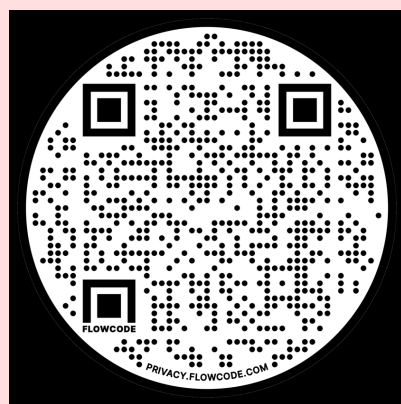
INVISTA Professor

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KHAN RESEARCH GROUP

Rheology & Tribology, Crop Protection, Nanofibers and Aerogels

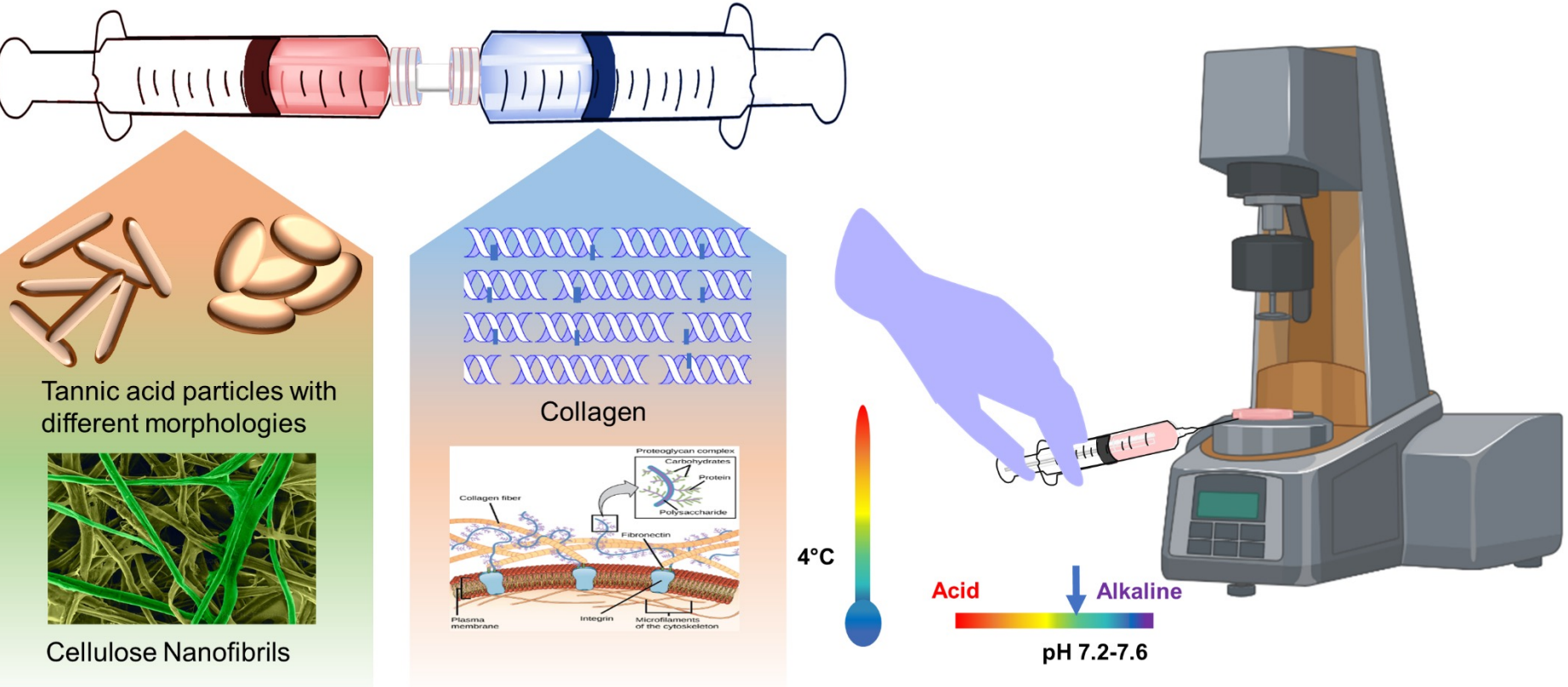
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Rheology & Tribology

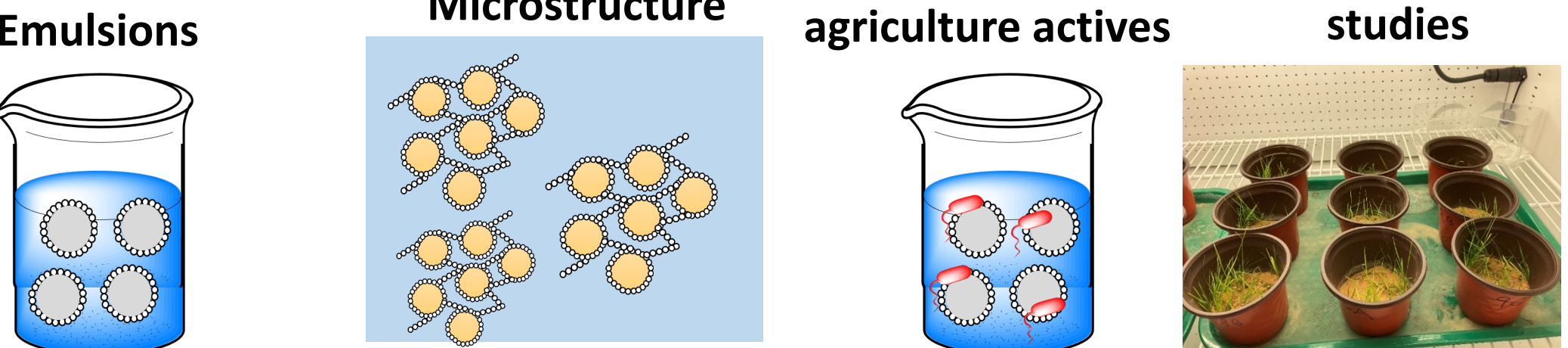
Injectable bio-based hydrogels | *Prottasha Sarker*

- Rheological characterizations to understand the pre-gel injectability, gelation kinetics, and yielding behavior of collagen and extracellular matrices (ECM) based hydrogels for drug delivery applications
- Improving mechanical properties of hydrogels via incorporation of morphology-controlled biodegradable tannic acid particles



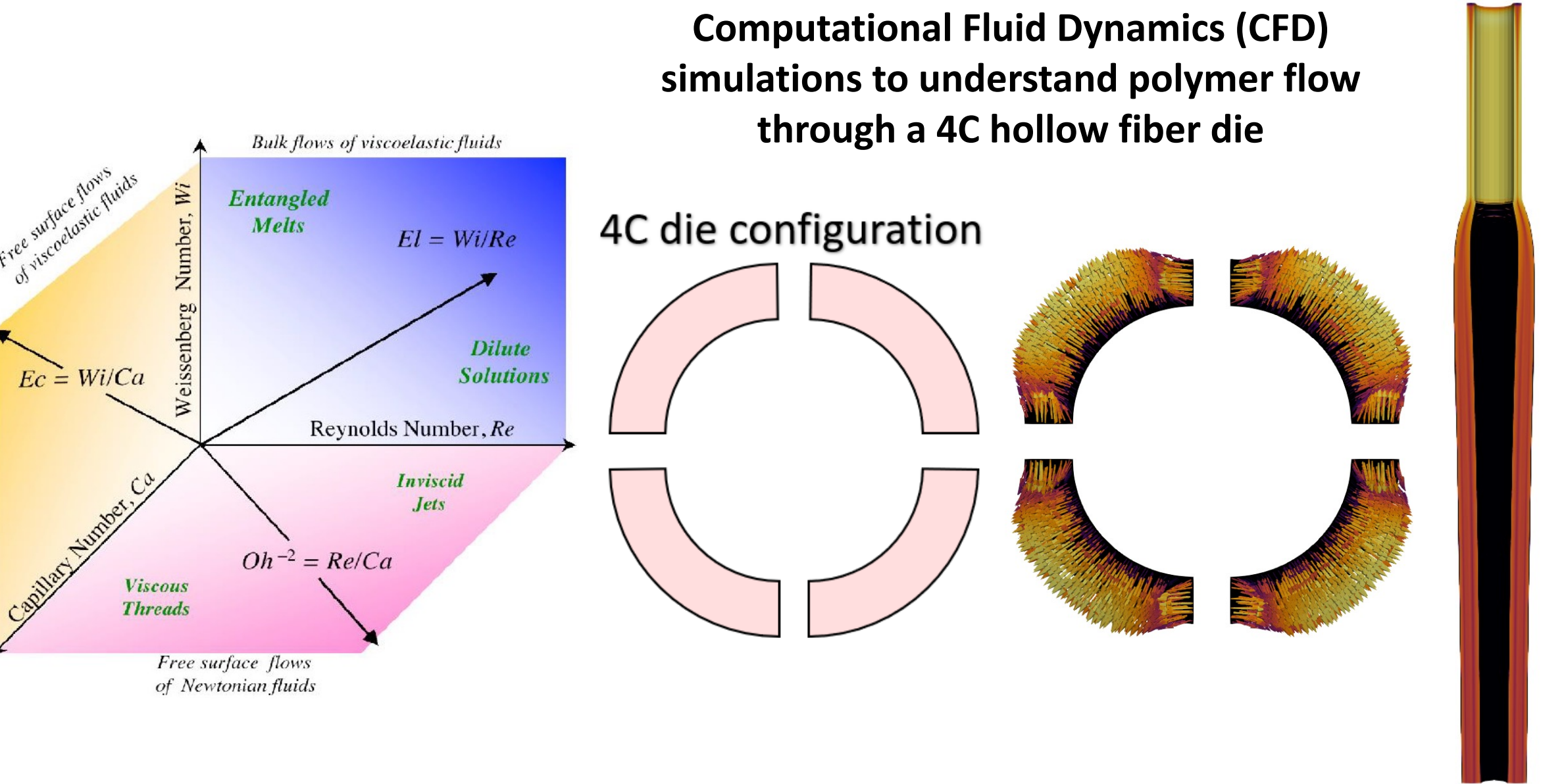
Rheology and applications of surfactant-free cellulose-acetate based Pickering emulsions *Mariam Sohail*

- Correlating emulsion microstructure and rheological behavior of biocompatible Pickering emulsions stabilized by cellulose acetate nanoparticles.
- Demonstrating use of cellulose acetate stabilized emulsions as loading platforms for agriculture cargo



Fluid dynamics and rheological parameters that influence hollow fiber formation *Himendra Perera*

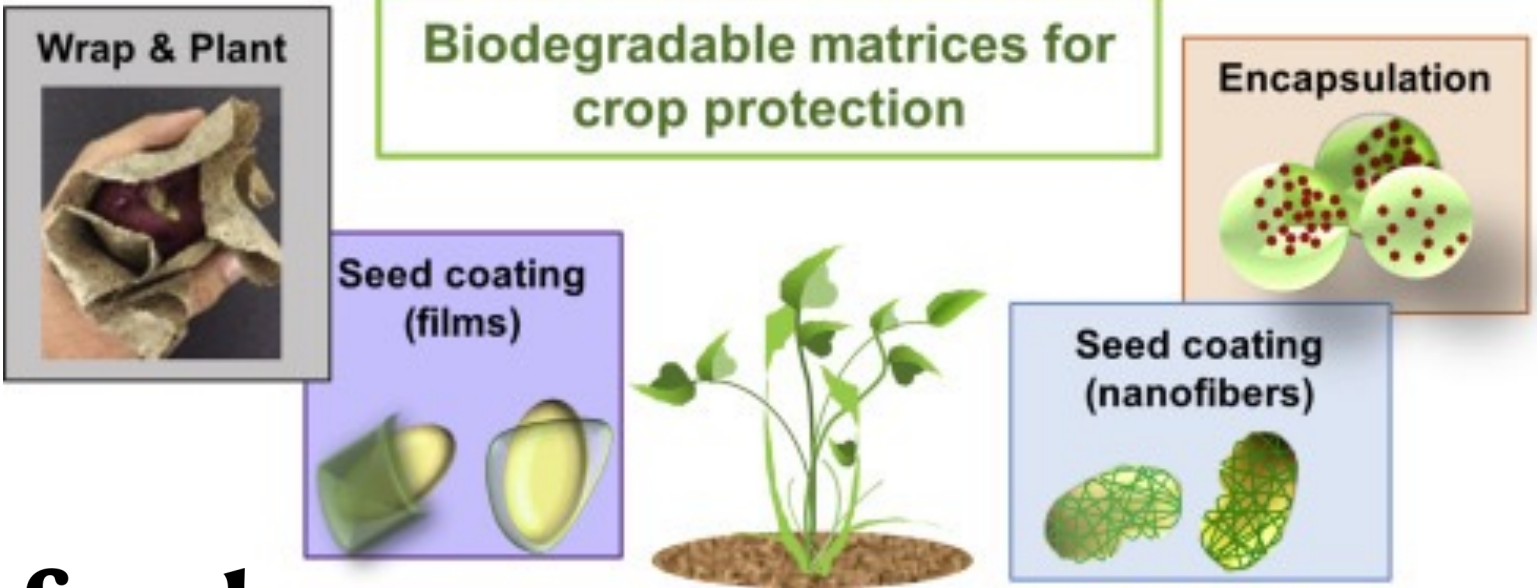
- Characterizing the influence of inertial, viscoelastic, and capillary forces on hollow fiber formation



Biodegradable Material Platforms for Sustainable Agriculture

Dr. Tahira Pirzada, Mariam Sohail

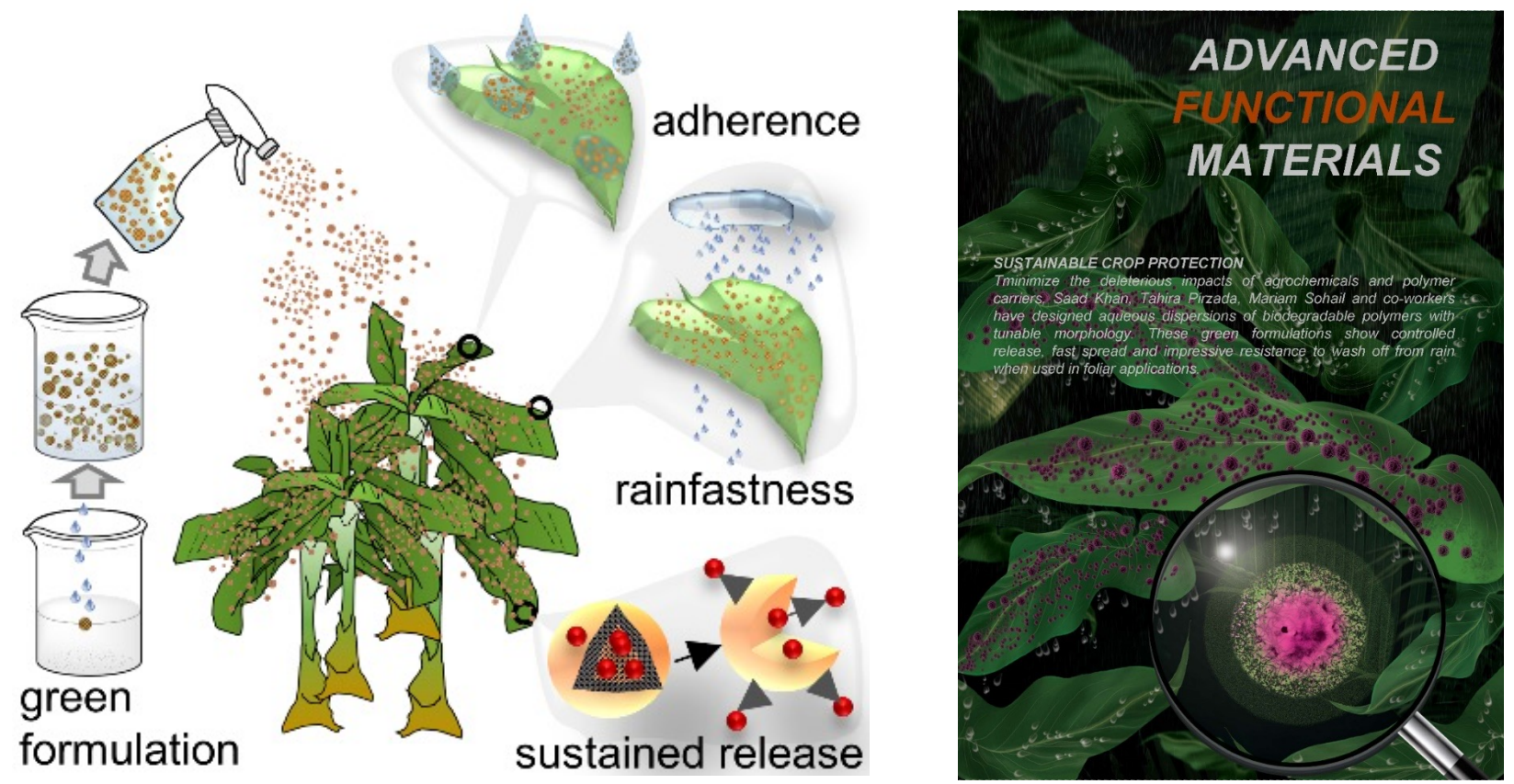
- We develop controlled and targeted delivery systems (seed treatments, coatings, foliar sprays) from biodegradable polymers and recycled plant wastes
- Efficiency of the delivery systems is verified via in-situ assays, greenhouse and field trials



nature food



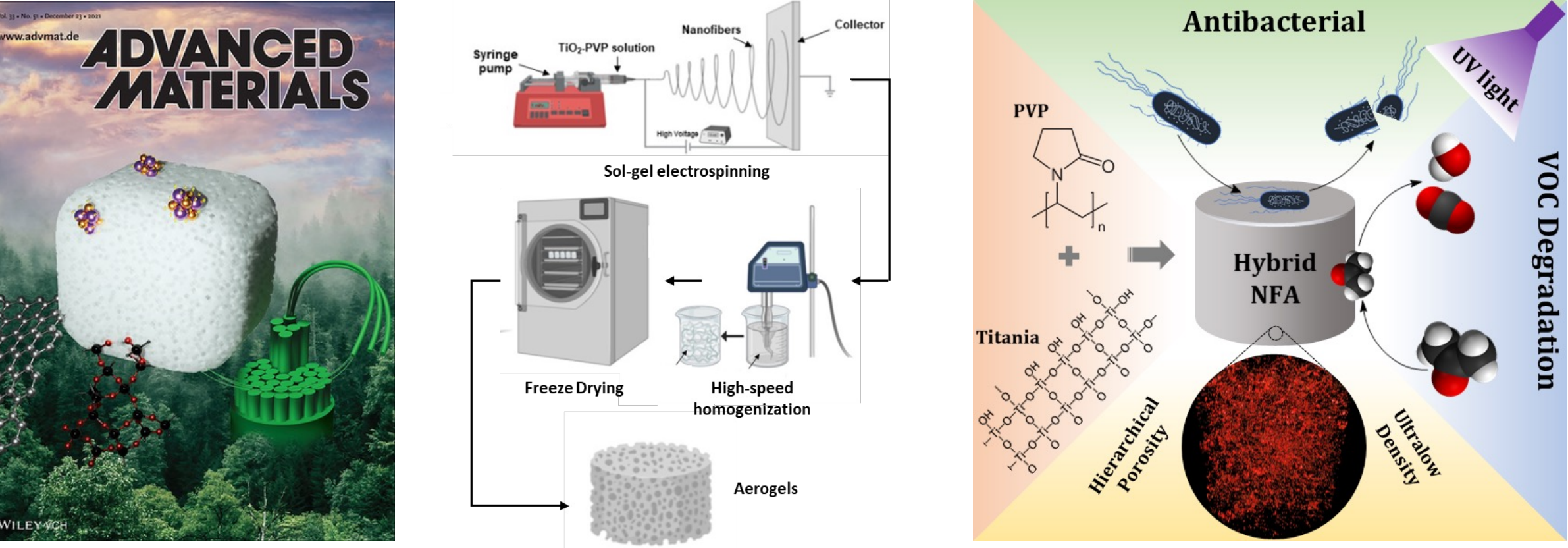
Aqueous dispersions of biodegradable polymers for foliar application



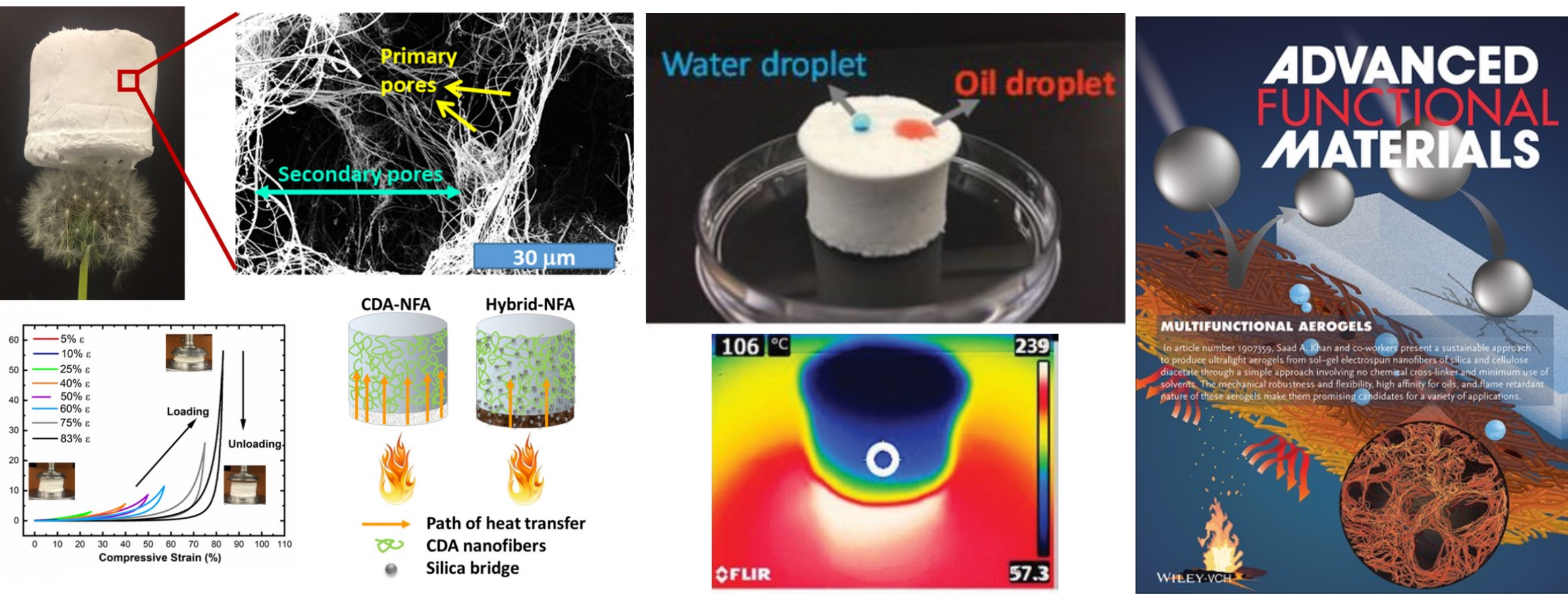
Multi-functional Nanofibrous Materials & Hybrid Aerogels

Multifunctional Hybrid Aerogels from Electrospun Nanofibers *Dr. Tahira Pirzada, Vahid Rahmanian, Muhammed Ziauddin*

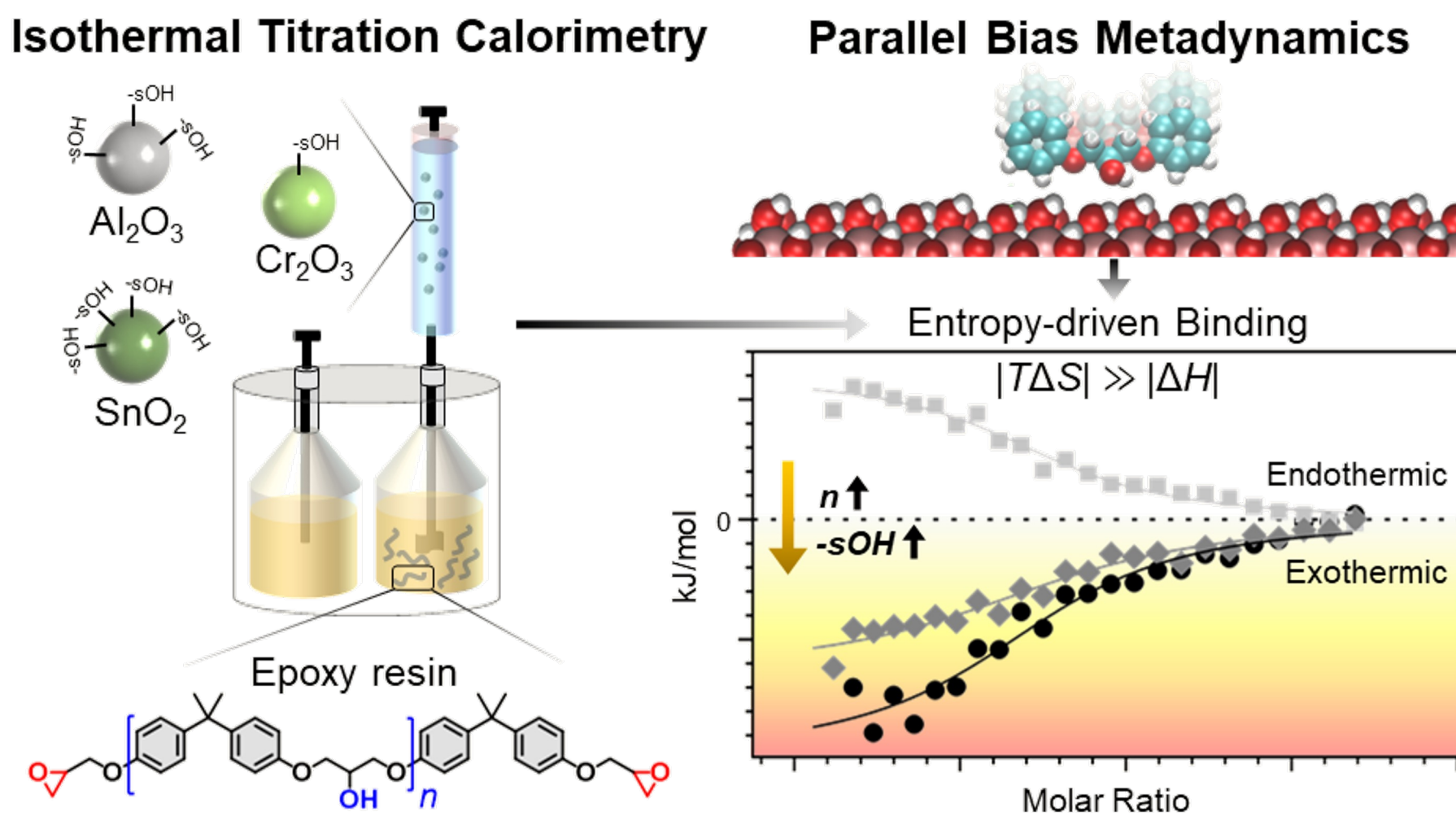
PVP-Titania Aerogels



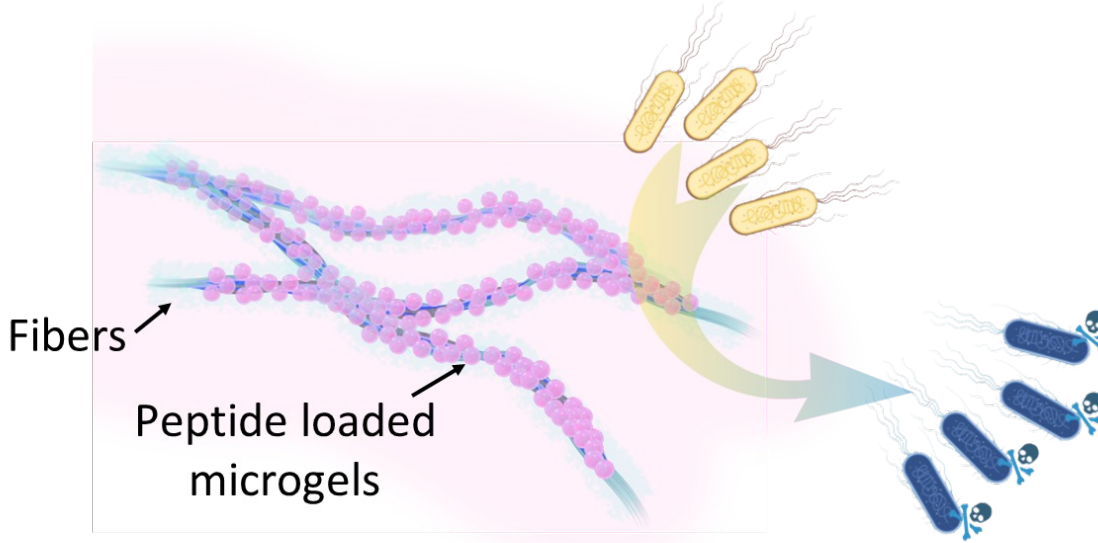
Cellulose Silica Aerogels



Molecular origins of Epoxy – Metal Adhesive Interactions | *Pallav Jani*



Integration of antimicrobial peptides with nonwoven substrates | *Eduardo Barbieri*



Recent Alumni

2023: Vahid Rahmanian, Zeus Industrial Products
2022: Srivatsan Ramesh, Bridge-Bio
2021: Siyao Wang, Applied Materials | Soo Ah Jin, Catalent | Camden Cutright, Micropore Technologies Ltd.
2020: Barbara Farias, BASF | Emily Facchine, Syngenta | Ria Corder, Assistant Prof at Univ. Tennessee, Knoxville

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