



MECHANICAL ENGINEERING SEMINAR

Thursday, Aug 27 2026 at 13:30, Lady Davis Building, Auditorium 250

Focus on Cellulosic Materials: from Nanocomposites to Trees

Miriam Rafailovich, Ph.D.

Distinguished Professor

Department of Materials Science and Chemical Engineering

Stony Brook University, NY

Hosted by: Professor Eyal Zussman

Cellulose is a natural, biodegradable material, making it an attractive component for incorporation into nanocomposites. However, achieving uniform dispersion remains a major challenge, and chemical modification strategies can be complex and significantly increase processing costs. Here, we discuss several alternative approaches in which surface and interfacial energy considerations are used to simplify processing. These strategies enable the development of cellulose-based materials for diverse applications, including flame-retardant coatings that can be sprayed onto foliage or incorporated into textiles, ductile nanocomposites suitable for fused deposition modeling (FDM) printing, and low-cost ion-conducting films for hydrogen fuel cells.