

Sneak Peek of our Cryo-TEM of Soft Matter: Self-Assembly, Dynamics, and Nanostructure

Dganit Danino,

Department of Biotechnology and Food Engineering, Technion, Israel

Cryogenic- TEM has long been recognized as an instrumental method for studying the nanostructure of soft materials (e.g., surfactants, lipids, peptides and proteins) at high resolution. The method involves ultra-rapid cooling of liquid suspensions and creation of amorphous, vitrified specimens, which captures the native state of structured liquids. This enables to get directly detailed structural information at the nanoscale, as well as to explore self-organization mechanisms and dynamics.

I will briefly review the principles of the main cryo-TEM techniques, direct-imaging and freeze-fracture, and present from our recent studies examples relevant to nanoscience and nanotechnology, e.g., with micellar systems [1], peptide nanotubes [2, 3], DNA/lipid systems for gene therapy [4], and lipid and protein nanovehicles for oral delivery [5, 6].

References:

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