

Cellular Solids

- Engineering cellular solids
 - Honeycombs: 2D prismatic cells
 - Foams: 3D polyhedral cells
 - Applications: sandwich panels, energy absorption, insulation
- Cellular materials in medicine
 - Trabecular bone, osteoporosis
 - Tissue engineering scaffolds; cell-scaffold mechanics
- Cellular materials in nature
 - Honeycomb-like: wood, cork
 - Foam-like: trabecular bone, plant parenchyma, sponges
 - Cellular/solid structural components in nature
 - Sandwich panels (leaves, skulls)
 - Radial density gradients (palm stems, bamboo)
 - Cylindrical shells with compliant cores (plant stems, animal quills, toucan beak)