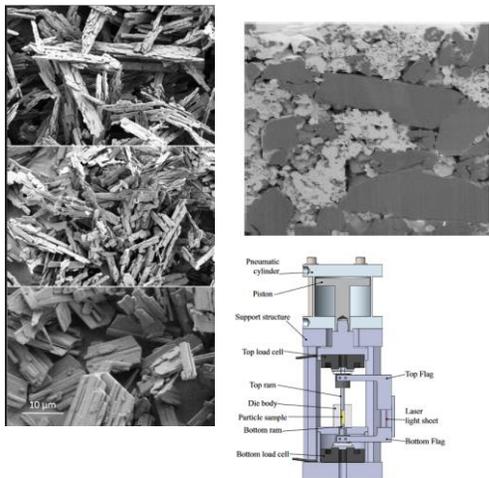
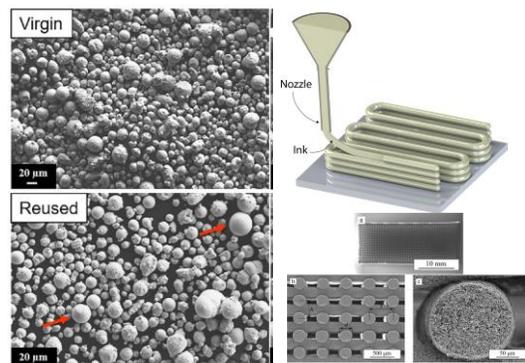




Energetic materials



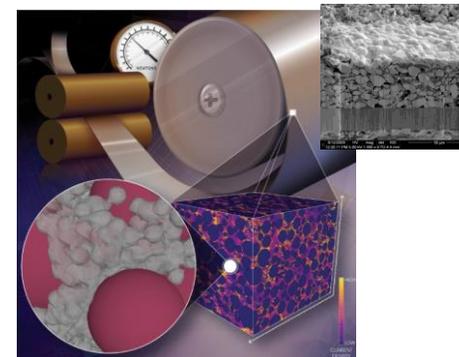
Additive manufacturing (metal, polymer powder, pastes)



Spray coating



Battery manufacturing



Ceramic piece parts, glass ceramics



.. and more!

Approaches to particle/powder characterization and specification vary widely across these areas

Examples:

Metal additive manufacturing powders

- Chemical composition: min and max for desired elements, max weight percent for other elements (contaminants)
- Particle size: min and max D10, D50, D90
- Particle shape: min and max aspect ratio, sphericity
- Flowability: max. Hausner ratio

Energetic materials and pyrotechnics

- Small batch/high consequence
- Specifications often based on empirically matching legacy materials
- Extensive characterization efforts on-going: single-particle micromechanics, bulk compaction, imaging, DEM mod/sim

