

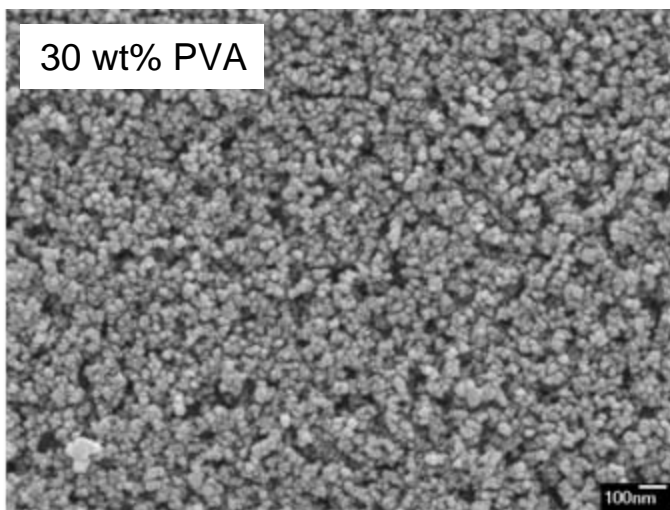
Structure & Properties of Nanocomposite Coatings

Lorraine Francis and Alon McCormick (PIs), Karan Jindal
Chemical Engineering & Materials Science, University of Minnesota

NNIN Facility utilized: Characterization Facility

λ RESEARCH GOALS

- ◆ Characterize structure and properties of coatings containing silica nanoparticles and poly(vinyl alcohol) (PVA)
- ◆ Develop strategies to design properties and improve performance



λ RESULTS

- ◆ Porosity decreases as PVA content increases up to 60 vol%. Above this level coatings are dense
- ◆ Modulus, as determined by nanoindentation, increases and then decreases as PVA content increases, matches model that accounts for moduli of phases and presence of pores

