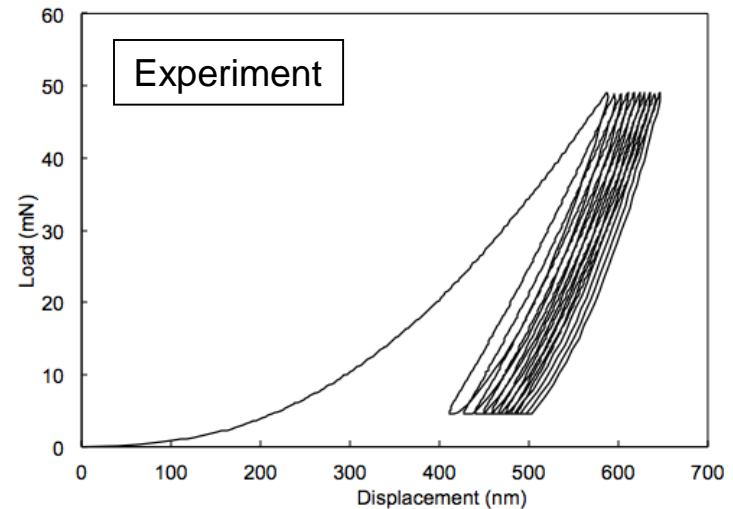
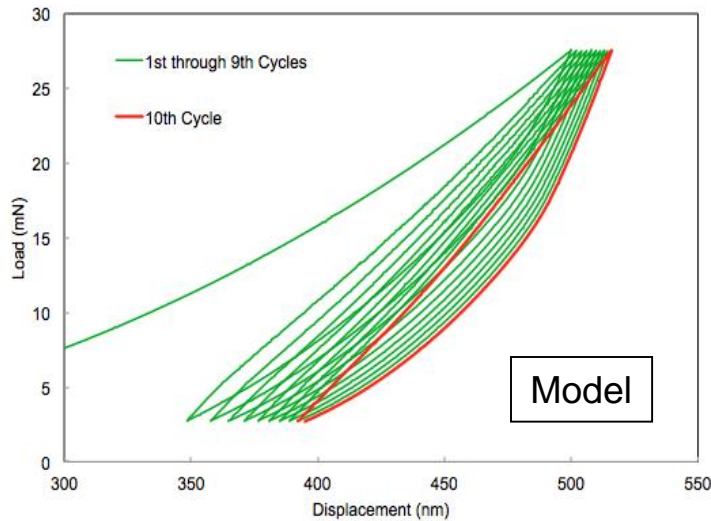
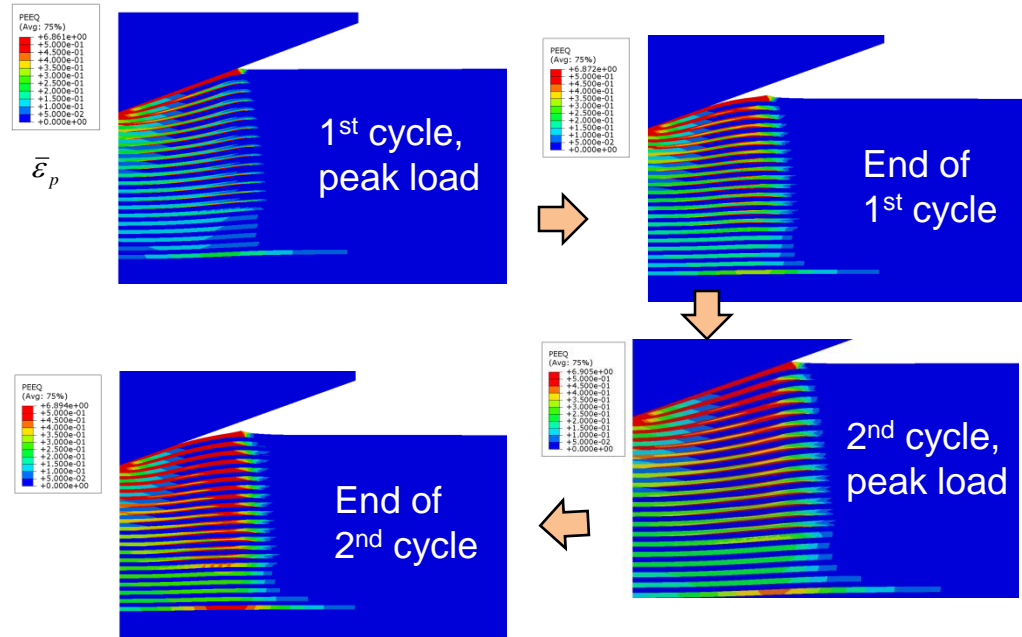
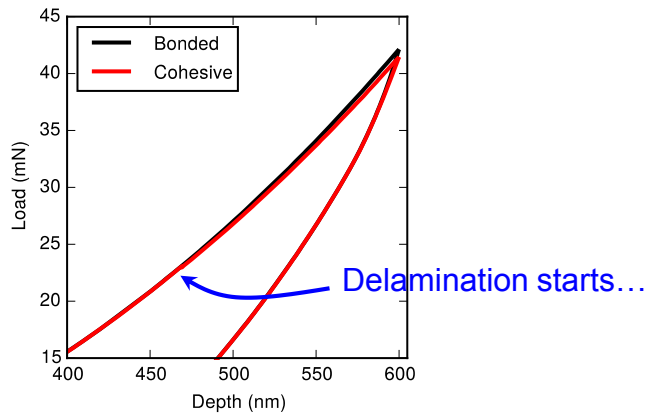


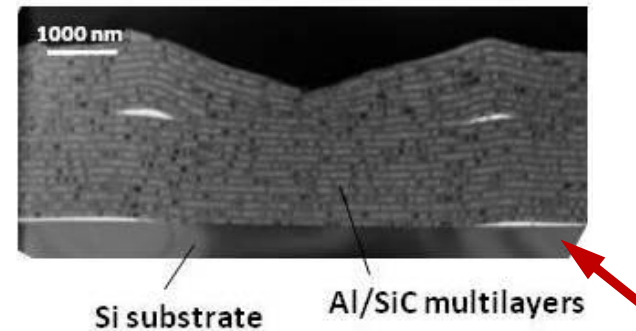
Characterization of Cyclic Indentation Behavior (Finite Element Modeling vs. Experiment)



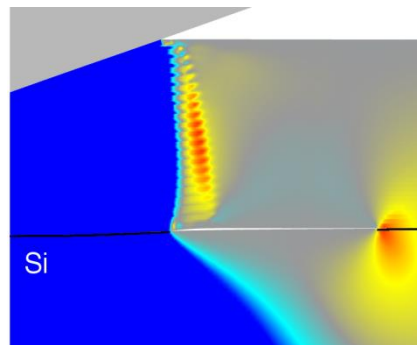
Modeling of Indentation-Induced Delamination



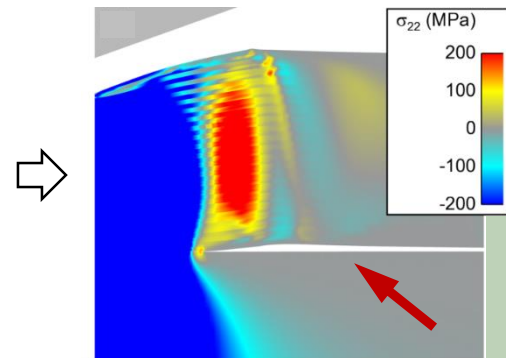
TEM cross section of post-indentation coating



at peak load



after unload



- Simulated delamination location consistent with observation.

References

1. Y.-L. Shen, *Constrained Deformation of Materials*, Springer, New York, 2010 (ISBN: 978-1-4419-6311-6).
2. R. D. Jamison and Y.-L. Shen, "Indentation-Derived Elastic Modulus of Multilayer Thin Films: Effect of Unloading Induced Plasticity," *Journal of Materials Research*, **30**, 2279-2290 (2015).
3. R. D. Jamison and Y.-L. Shen, "Indentation and Overall Compression Behavior of Multilayered Thin-Film Composites: Effect of Undulating Layer Geometry," *Journal of Composite Materials*, **50**, 507-521 (2016).
4. R. D. Jamison and Y.-L. Shen, "Delamination Analysis of Metal-Ceramic Multilayer Coatings Subject to Nanoindentation," *Surface & Coatings Technology*, **303**, 3-11 (2016).