Center for Surface Engineering
and Enhancement

EXPERTS IN SURFACE ENGINEERING

PURDUE
UNIVERSITY

Materials Engineering
COLLEGE OF ENGINEERING

INITIAL PHASE

(2015-2019)

Siavash Ghanbari
Profesoor Dave Bahr

Electronics Inc.
Shot Peening Control

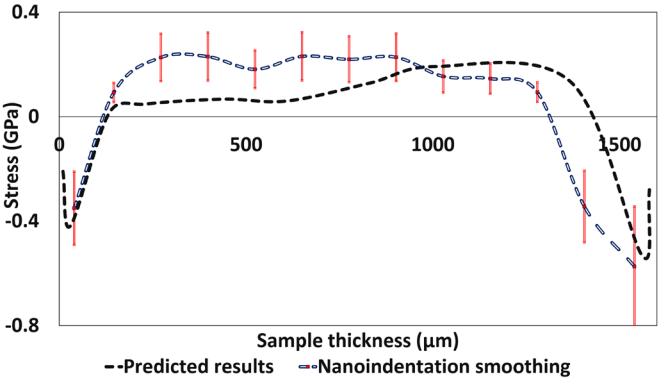
Objective:

To develop computer simulation(s) that enable industry users to model shot peening effects.

Experimental Approach:

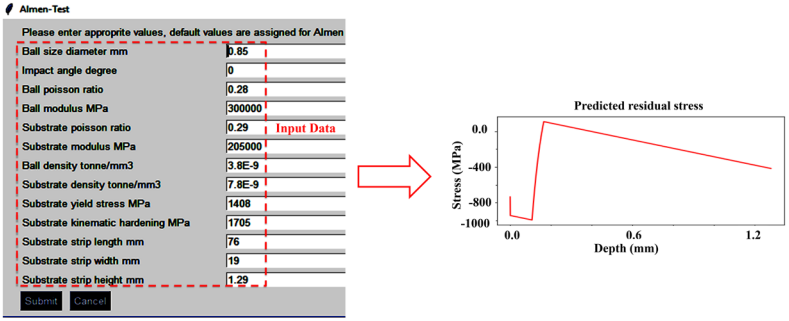
Make residual stress measurements of shot peened samples.

Nano-indentation Stress & FEM Modeling



Residual stress measured by nanoidentation and predicted by FEM modeling.

"Stand-Alone" Modeling



Results:

- **Shot peening simulation models have been developed**
- **Good correlation with physical measurements of:**
  - **Residual Stress**
  - **Surface Topography**

CURRENT PHASE

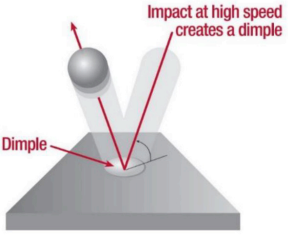


Image Analysis Characterization for Shot Peening

CANTY PROCESS TECHNOLOGY

Electronics Inc. Shot Peening Control

Surface Enhancement for Infrastructure Applications

EMPOWERING TECHNOLOGIES

ERVIN

Surface Engineering of Titanium Medical Components

Medtronic

Progressive SURFACE

Additive Manufacturing of Advanced Ni Superalloys

PRAXAIR SURFACE TECHNOLOGIES

Characterization of Surface Modified Steels for Fuel Applications

Cummins

FUTURE PHASE

- Residual Stress Measurements
- Surface Topography/Characterization
- Mechanical Properties
- Particle Size Analysis
- Industry Partners
- Purdue Engineering Faculty and Students
- Much More!

Company Expertise

Materials Engineering

Surface Engineering

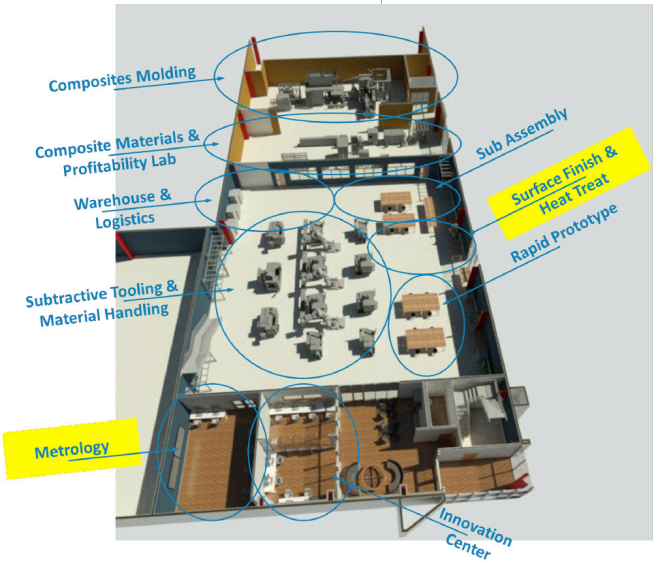
PURDUE UNIVERSITY

N-MaC

Staggered Projects

Several Members

Multiple Faculty



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Robyn Jakes
765-494-4094
rnjakes@prf.org
www.engineering.purdue.edu/MSE