Advanced Manufacturing

THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Jerald R. Brevick

Associate Professor of
Integrated Systems Engineering
210 Baker Systems Engineering Building
1971 Neil Avenue
Columbus, OH 43210
Office Phone: (614) 292-0177
Email: Brevick.1@osu.edu

Experience Highlights

- 24 Years OSU Experience
- 10 Years Metal Casting Industry Engineering Experience
- 75+ Publications
- Registered Professional Engineer

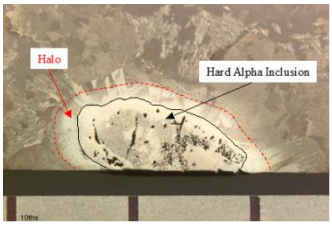
Experience Summary

Undergraduate and MS degrees in Metallurgical Engineering, Ph.D. in Industrial and Management Systems Engineering. Foundry engineer (10 years) for automotive suppliers of gray, malleable, ductile and chilled iron spark ignition and diesel engine components; cupola, electric arc and induction melting; green sand and centrifugal molding; investment casting of stainless steels and nickel-base alloys; high pressure die casting of aluminum alloys for powertrain components.

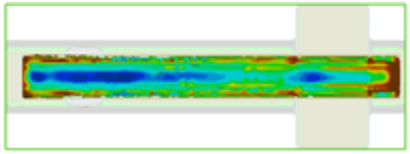
OSU research focus on high pressure die casting of light alloys (aluminum and magnesium). Focus on process engineering; experimental and numerical simulation of flow and heat transfer during metal injection, in-cavity sensors and control of machine injection parameters, detection and evaluation of defects, characterization of die lubricants, semi-solid die casting, vacuum die casting, evaluation of casting gas content via vacuum fusion testing, evaluation of the castability and mechanical properties of new die casting alloys, die casting process energy consumption.

Research Areas

- ***Detectability and Effects of Inclusions in Titanium Investment Castings:*** Development of a method to seed hard alpha and shell inclusion defects into known locations in titanium investment castings to evaluate the detectability and influence on fatigue life.



- ***Externally Solidified Products In The Cold Chamber Die Casting Process:*** Numerical simulation and experimental evaluation of the amount of solidification occurring in die casting machine shot sleeves, and how much is transported into the casting during cavity filling.



- ***Evaluation of Tool Materials and Thermal Fatigue Life for Die Casting Copper Motor Rotors:*** Finite element analysis of various tool materials, and preciction of die life due to thermal fatigue via the method of universal slopes; in support of developing economical methods for manufacturing high efficiency electric induction motors.