

Developed a combinatorial approach to accelerate the discovery and research of NiMnGa alloys.
Designed diffusion couple experiments between selected alloys to generate compositional gradient.
Characterized the interdiffusion zone using FIB, TEM, SEM, EPMA and nanoindentation.
Correlated mechanical anomaly across the interdiffusion zone to martensitic transformation.
Collaborated with other research groups to investigate the magnetocaloric effects.

Failure mechanisms of EB-PVD thermal barrier coatings (TBCs) with (Ni,Pt)Al bond coats sponsored by Doosan Heavy Industry.

Tested the TBCs using furnace thermal cycling method.
Analyzed the TGO stress by PSLs and quantified the bond coat rumpling through image analysis.
Characterized the microstructural evolution and martensitic transformation using TEM.

Funded Research

Co-h temperature
sensors for real-
Technology, Inc, funded by National Science Foundation SBIR Phase II, 2019.

Recent Publications

[Google Scholar](#), Corresponding Author*

L. Zhou*, T. Huynh, S. Park, H. Hyer

(before Marquette):

- a. Holden Hyer, research topic: processing optimization and solidification behavior of additively manufactured Mg- and Al-based alloys, expect to graduate with Ph.D. on Fall, 2020.
- b. Sharon Park, research topic: gas atomization of metallic alloys and effect of feedstock particle characteristics