



Exceptional service in the national interest

SNL-CA AM Capabilities

Org.8524

Manuel Antonio Lopez

Introduction

Brief bio

- AM Services Provider Lead
- *in situ* diagnostics with Computers simulations to understand residual stress for more consistence Ti parts

Current research

- Lattice large file size into STEP
- We need to strengthen collaboration
- Research to reduce lack of data

Areas to collaborate

- Make the most of current capabilities
 - Melting Pool and Software Analizuz
- SNL would like to partner with UCD performing basic research that could help us solve others AM challenges

Journey

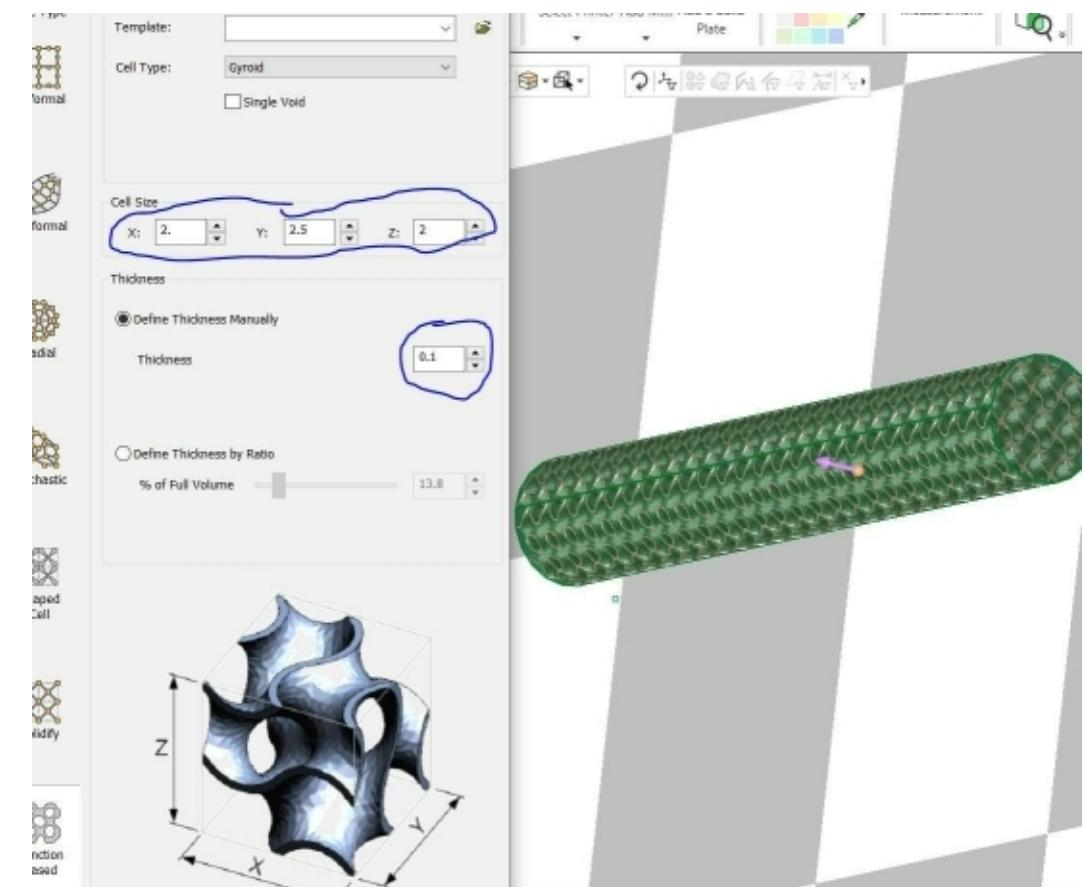
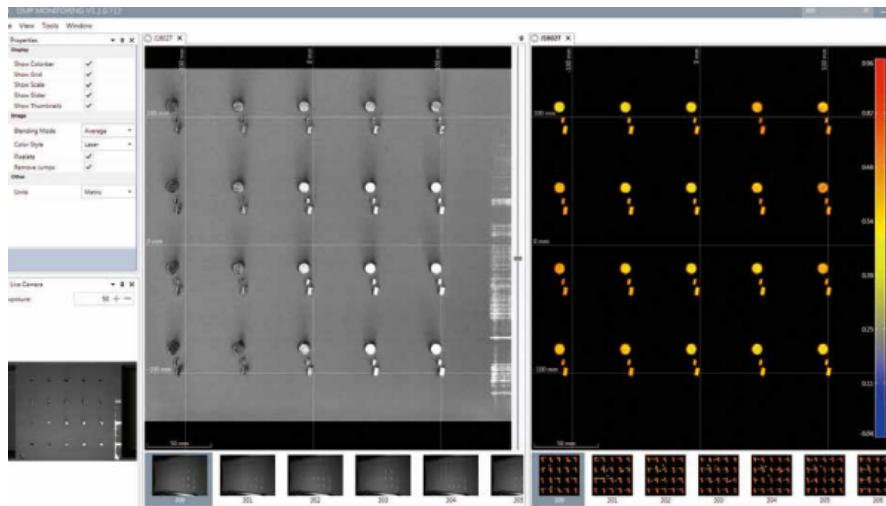


Manuel Lopez

- MS Thermal Science UPRM
- 2011-2012 AM Service Engineer **3D-System**
- 2012-2015 AM R&D Engineer **GEA**
- 2015-2018 AM Process Engineer **GE Power**
- 2018- Present R&D S&E Mechanical Engineering **SNL**
- In situ monitoring, computer modeling, and Large Size files into Step
- Contact information
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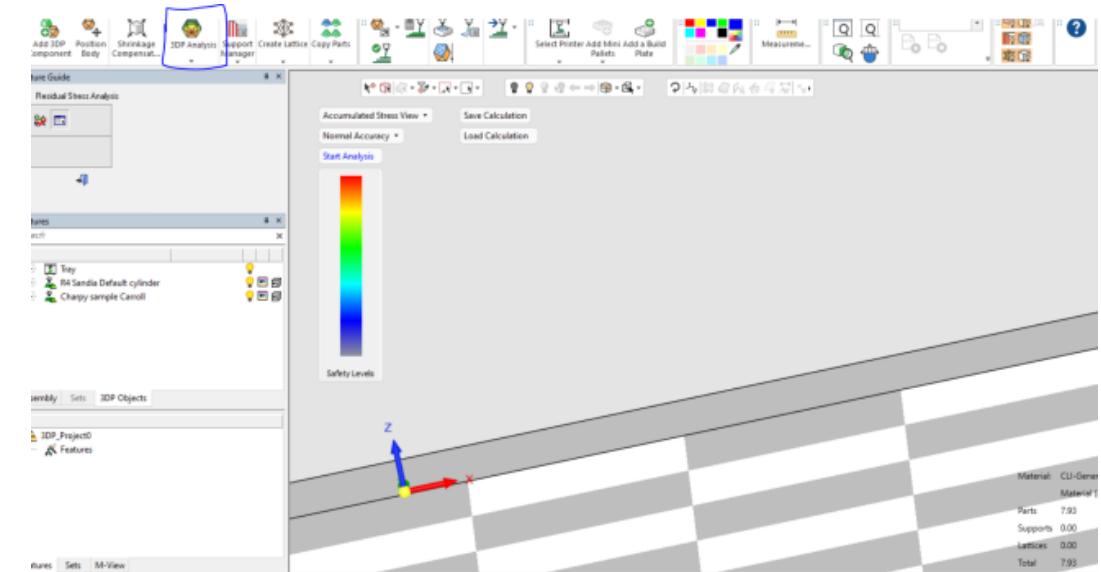
Current work

- Lattice structurers allow to perform new design that is not possible with conventional manufacturing
 - Increment of file sizes from 100Mb to 100gb
 - Possibilities to export a STL files (100gb) into STEP?
 - Is it software or computer limitation
- Ti Stress and Distortion
 - Impact in the dimension of the part
 - How to mitigate stress
 - Modeling & Monitoring system



Capabilities

- Materials
 - 304L
 - 316L
 - Ti64
 - Ti555-3



Path forward/ Ways to Collaborate

Summary

- Generate statistical results for Ti5-5-5-3
- Lattice large memory size into STEP format
- **How can you partner with UC Davis going forward?**
 - Tour of our facility
 - Work together some of our challenges
 - Provide feedback on AM Build and layout strategies

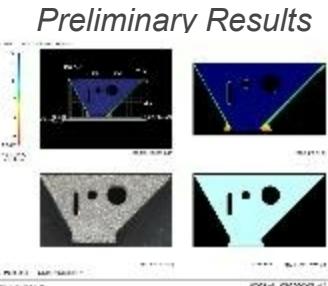


Thank you!!!

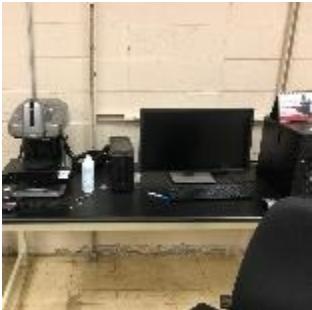
Q&A

Inspection Lab

Technology



2018-
Q2



Model: Keyence VR-300 Series

2018-
Q3



Model: Mercury Scientific
Rev2015

2018-
Q4



Model: SEM Thermo Joel

2019-
Q1



Model: ATOS Core 135
Blue Light Scanning
High speed image
measurement

AM Lab
Capability
advance

2022



Model: PROX200

304L & 316 Printers



DMP 350



Key Feature	
Build Plate Dimensions	275*275*350mm
Operational O2 Levels	~3 PPM
Laser Power	500W
Alloys	Ti64 & T555-3
Software	3DExpert
Accuracy	50µm
Feature	100µm
Repeatability	X,Y,Z 20µm
Surface Finish	10-15Ra
Density	99.8%