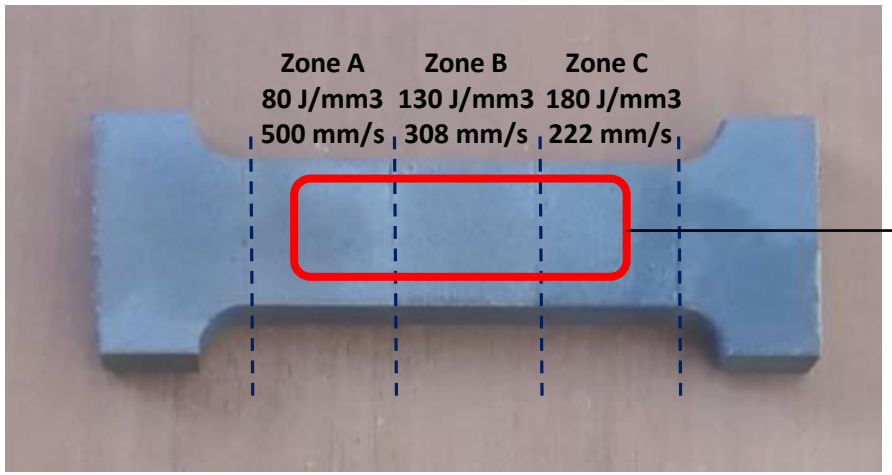
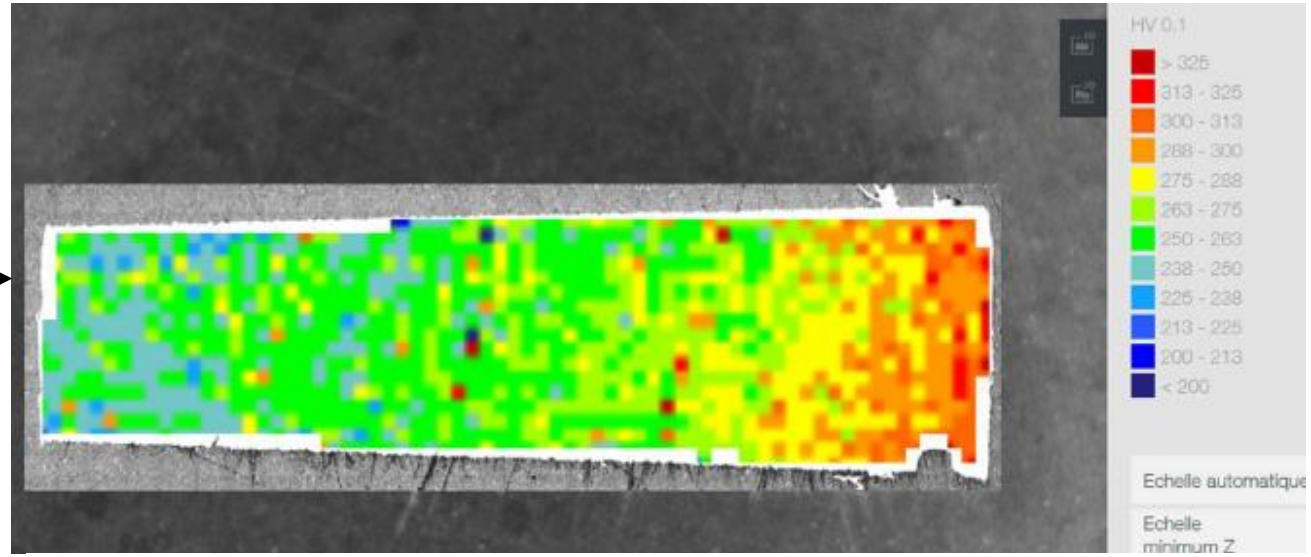
Functionally graded material via SLM process

Internship student: Luca FREITAS (TAMU)
Supervisers: H. RAMEZANI DANA (ENSAM-TAMU)
M. ELMANSORI (ENSAM-TAMU)
S. BUKKAPATNAM (ENSAM-TAMU)

During this study, we will realize a series of functionally graded materials via selective laser melting (SLM) technique. The FGMs samples will be printed with different energy density and diverse layer thickness. The mechanical properties of elaborated FGM samples will be revealed via a tensile test and Digital Image Correlation (DIC) technique will be used to provide strain measurement. The study should allow establishing a relation between the different parameters of the SLM manufacturing process and the mechanical properties of FGMs samples.



FGM specimens showing the different energy levels
Dana et al., FEMS Euromat Conference, Spain, 2020.



A graph of each indentation and its respective hardness (Luca FREITAS Internship)

Energy density ↗ => Hardness ↗

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