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MSEC SEMINAR AND COMMERCIALIZATION FORUM



INVITED SPEAKER:

LUIS TRUEBA

“Friction Stir Welding of Wrought Aluminum Alloys”

October 25th, 2019

1:30 – 3:00 PM

RFM 3224

Biography:

Luis Trueba obtained Bachelor of Science and Doctor of Philosophy degrees in metallurgical engineering from The University of Texas at El Paso and the Missouri University of Science and Technology (formerly University of Missouri-Rolla), respectively. Before going into academia, Dr. Trueba worked for two years as a manufacturing technologist with Applied Materials, Inc. in Austin, Texas and two-and-a-half years as a process engineer and shift supervisor with Reynolds Metals in Lake Charles, Louisiana.

Dr. Trueba’s doctoral research was in the area of nozzle clogging during the continuous casting of aluminum-killed steels. He has also performed research in the areas of carbon nanotube fabrication, improved melt recovery of ferrous metals, computational thermodynamic modeling for the improved foamy slag practice in electric steelmaking, and tool design for and optimization of friction stir welding. In addition, he has experience in the failure analysis of natural gas transmission equipment and direct chill casting of aluminum alloys.

FOR MORE INFORMATION OR IF YOU WOULD LIKE TO HAVE LUNCH WITH THE SPEAKER,
PLEASE CONTACT DR. SHANNON WEIGUM AT SWEIGUM@TXSTATE.EDU

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Dr. Trueba joined Texas State University in 2019. Prior to joining Texas State University, Dr. Trueba was a member of the faculty at Trine University in northeast Indiana. He then joined the faculty at the University of Texas at El Paso followed by the University of Texas of the Permian Basin. Dr. Trueba has extensive experience teaching courses in metallurgical and materials engineering, engineering fundamentals, and nuclear engineering.

Abstract:

Friction stir welding (FSW) is a solid-state joining process suitable for a wide range of materials capable of undergoing large amounts of plastic deformation such as aluminum and its alloys, steel, and even some plastics. The benefits of FSW compared to traditional fusion welding processes include compatibility with all types of aluminum alloys, elimination of solidification defects, good mechanical properties, low distortion, reduced power consumption, the absence of toxic fume production, and no need for filler metal. The process does face some limitations such as the need for a backing plate or anvil and the presence of a keyhole at the end of the weld. This presentation will give a brief overview of the friction stir welding of wrought aluminum alloys, defects associated with friction stir welding, and developments in tool design.

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