

Grant Recipient Report

Steel Professor Grant

Laura N. Bartlett, Missouri University of Science and Technology

The goal of the project is to increase the awareness of steelmaking technology to new students and the number of students entering the steel industry through participation in AIST events, steel plant interactions and various outreach programs.

Dr. Bartlett and her Ph.D. student participated in AIST's International Symposium on New Developments in Advanced High-Strength Sheet Steels in 2023. Dr. Bartlett's graduate student was supported through the Steel to Students program, in which he presented on his research and prepared a paper.

Six students attended AISTech 2023. Most of these students presented papers and posters at the various steel technical sessions. Missouri S&T professors and former students won the 2023 Jerry Silver Award, which was also presented at the conference.

Dr. Bartlett also encourages her students to participate in other competitions that are sponsored by the AIST Foundation. For the first time in many years, Missouri S&T students participated in the AIST Real Steel Marketing Video Contest. Benjamin Edwin-Paul Hilgers placed in the competition and took home a US\$500 prize for his video "Saving Energy With Steel."

AIST Foundation funds have been leveraged to increase the number of steel manufacturing plant tours during the 2022–2023 academic year. Steel industry tours included day trip visits to Caterpillar Mapleton Foundry and the ASM Peoria Chapter meeting and dinner for 26 students and faculty, and a tour of Amsted Rail steel foundry in Granite City, Ill., USA, in February 2023. Twelve students also attended a two-day trip to Nucor-Yamato Steel Co. in Blytheville, Ark., USA, and Southern Cast Products in Jonesboro, Ark., USA.

This academic year, we leveraged our connections with the newly formed Kummer STEM Center to bring more than 15 different steel manufacturing and metalcasting workshop demonstrations and training programs for more than 250 K-12 students from various high schools from around the U.S. These included steel pours for various groups of diversity such as Black Girls Do STEM, Society of Women in Engineering, Men of Code, and the 21st Annual Expanding Your Horizons for hundreds of middle school girls. Dr. Bartlett's group is dedicated to celebrating and bringing awareness to diversity in STEM education and STEM professions. A group of approximately 100 middle and high school



students visited the Materials Science and Engineering Department in February 2023 to take part in hands-on, engaging activities with S&T educators and students.

A three-day workforce development program was developed to increase student exposure to the steel industry and metalcasting. A total of 35 high school students, 12 professionals from industrial manufacturers and the U.S. Department of Defense, and 12 Missouri S&T university students participated. During the program, Missouri S&T partnered with Nucor, Southern Cast Products, and the American Foundry Society to develop a unique workforce training event geared toward advancing 3D printing of steel casting molds and training future and current engineers in the latest sensing technologies for development of predictive and in-line controls. ♦