

Grant Recipient Report

Kent D. Peaslee Junior Faculty Award

JingJing Qing, Georgia Southern University

With the support of AIST Kent D. Peaslee Junior Faculty Award, Qing is organizing and leading various events and activities to enhance the education on steel and iron and promote the steel and iron industry at Georgia Southern University (GSU). With strong support from the local steel and metalcasting industry as well as the Allen-Paulson Computing and Engineering College of GSU, Qing has established a well-equipped metallurgy and analytical lab to pair with the GSU foundry/metalcasting lab. In addition, Qing has been working closely with AIST Foundation for promoting their training and scholarship programs among GSU students.

Qing has been actively organizing events and activities to promote the steel and iron industry at Georgia Southern University (GSU) and in the region:

- GSU students are taking advantage of training and scholarship opportunities offered by the AIST Foundation. An increasing number of students have been placed in the steel industry and seven GSU students were awarded the AIST Intern Scholarship.
- Qing and Mingzhi Xu organized several steel plant tours to steel mills.
- Eleven GSU students attended the 2023 AIST Southeast Member Chapter annual meeting.
- Qing established the GSU Material Advantage (MA) student chapter. She is the chapter advisor and the secondary advisor of GSU's American Foundry Society student chapter.
- GSU student teams participated in national and regional casting competitions. Two GSU students won first and second place in a casting competition during the 2024 American Foundry Society Southeast Regional Annual Conference. GSU teams have also been winning awards for the Cast-in-Steel competitions hosted by the Steel Founders' Society of America for the past several years. Qing advises the teams on designing and conducting heat treatments of the steel castings that were designed and cast by the student teams.
- Qing hosted several metalcasting summer camps and support activities for K–12 students.
- She has given steel lectures to local high school students.
- Qing hosts tours of the metal processing facilities of GSU.



Qing has developed and offered a senior elective course on steel heat treatment and microstructure under the support of AIST Steel Curriculum Development Grant. Students learn about the steelmaking process, steel heat treatment and steel microstructure. A hydraulic forging press and a steel forge have been utilized in this class to demonstrate how to forge steel.

This grant has also helped Qing to match the acquisition cost of several major equipment/instruments and software packages used for iron and steel research. Qing has established a metallography and analytical research laboratory equipped with mounting press, autopolisher, vibratory polisher, microhardness tester, Brinell Hardness tester, DIC optical microscopy and optical emission spectrometer, LECO C&S and LECOM combustion analyzers, as well as a scanning electron microscope capable of auto feature/inclusion analysis.

Qing also sponsored a senior design team in 2023 that built a mobile cupola furnace, with technical support from industry experts. A senior design team also designed a rolling mill station, which will enable the capability of thermomechanical processing of steels at GSU.