AME7: Solution strengthened ferritic ductile iron
Sponsor: Waupaca Foundry

Project Description: Waupaca Foundry is "the largest producer of gray, ductile, austempered ductile, and compacted graphite iron in the world, melting more than 9,500 tons a day. Ductile iron commonly has a pearlitic matrix, which provides good strength but sacrifices ductility. One microconstituent that provides higher ductility is ferrite, but ferrite has much lower strength than pearlite. A strategy to increase ductility while maintaining strength is the solid solution strengthen the ferrite. Often silicon is added at levels of 2.7 to 3.7 % to provide the necessary solute strengthening. Waupaca would like to explore the composition space for this alloying strategy, not just for silicon, but for other elements as well.