

Conference Wrap-Up

International Symposium on New Developments in Advanced High-Strength Sheet Steels

Details:

30 May–2 June 2017, Keystone Resort and Conference Center, Keystone, Colo., USA

Highlights:

This conference was the latest installment in a series of product-specific conferences. This year's symposium focused on developments in dual-phase, twinning-induced plasticity, martensitic, quenched and partitioned (Q&P), medium-manganese steels, other third-generation advanced high-strength steel (AHSS) concepts, and hot-stamped steels along with recent experiences with industrial implementation and end-user application performance. There were 155 attendees from 17 different countries, including steel industry researchers, engineers responsible for the production and implementation of the products in steel mills, industry suppliers, university researchers and students, and representatives from the automotive industry.

The organizing team from AIST's Metallurgy — Processing, Products & Applications Technology Committee and The Colorado School of Mines' Advanced Steel Processing and Products Research Center included Emmanuel De Moor and John Speer, Colorado School of Mines; Narayan Pottore, ArcelorMittal Global R&D; Grant Thomas, AK Steel Research; and Matt Merwin, United States Steel Corporation.

De Moor began with a introduction on the importance of AHSS. Thomas, among others, presented on



The organizing team from AIST's Metallurgy — Processing, Products & Applications Technology Committee and The Colorado School of Mines' Advanced Steel Processing and Products Research Center included (left to right): Narayan Pottore, Emmanuel De Moor, Grant Thomas, Matt Merwin and John Speer.

how steel production facilities are working to produce AHSS steel for the automotive industry. AK Steel – Dearborn Works recently completed capital improvements to its hot-dip galvanizing line to produce a multitude of



The International Symposium on New Developments in Advanced High-Strength Sheet Steels drew 155 attendees to scenic Keystone, Colo., USA.



1. Emmanuel De Moor opened the conference with an introduction about the importance of advanced high-strength steels, as evidenced by the amount of research being done on them. **2.** The three-day symposium included 52 presentations.

AHSS grades such as Q&P grades. Improvements to the thermal profile included a jet cool system followed by induction reheating prior to immersion in the zinc pot.

Paul Belanger, Gestamp USA, was a presenter on the production of automotive components at Gestamp and how Gestamp has worked to improve the production efficiency of hot-stamping AHSS components while not sacrificing properties and quality. The new production line at Gestamp has thermostabilized tooling to maintain consistent temperature profiles of the components during pressing.

Automotive manufacturers discussed not only the success of using AHSS in automobiles but also the challenges that still remain. Curt Horvath discussed the persistent challenges to AHSS implementation at General Motors. Through the use of high-strength steels, GM has worked to lower the body weight of many of its vehicles. Improvements in structure weight reduction, powertrain technology, optimization of components and systems, and improvements in aerodynamics have been realized. On average over seven vehicle types, GM has reduced vehicle mass by 160 kg (with 53 kg in BIW mass reduction).

Andreas Frehn, Benteler Automotive, discussed applications of AHSS in chassis frames, where AHSS will excel, as well as where it isn't efficient. Overall, challenges exist in terms of increasing corrosion resistance, worldwide availability of product and variability of quality.

Many other presenters showcased their research projects and advancements that have been made in the field of AHSS steels. Presentations were given focusing on improvements in strength and quality, grain refinements, microalloying, phase transformations during cooling, quenching sequences to improve strength and yield, implementing new practices, and discussions on what the future may hold as researchers move from the third generation of AHSS to the fourth generation.

Thirty-eight papers from the conference were reviewed and published in a proceedings book as part of the program for other researchers to learn and advance their research for the future. ◆