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TMS 2018
147th Annual Meeting & Exhibition

MARCH 11 – 15, 2018
PHOENIX, ARIZONA

SUBMIT AN ABSTRACT TO:

ADVANCED MATERIALS

ADVANCED HIGH-STRENGTH STEELS

Advanced high-strength steels (AHSS) are particularly important to the automotive industry. The application of AHSS on automobiles is an effective way to reduce the weight of vehicles and therefore the fuel consumption while maintaining the passive safety. To address the current and future needs to reduce even further the weight of vehicles in future car designs, new AHSS grades are actively being researched in industry and academia.

This symposium focuses on the latest developments in high-strength low alloy (HSLA) steel, dual-phase (DP) steel, transformation-induced plasticity (TRIP) steel, complex phase (CP) steel, martensitic steel, twinning-induced plasticity (TWIP) steel, quenched & partitioned (Q&P) steel, Mn-TRIP steel and press-hardened steel (PHS). This symposium invites contributions on the understanding of process-microstructure-property relationships of AHSS. Application of advanced characterization techniques on AHSS with a particular focus on the nanoscale is welcome. In addition, advanced modelling and simulation of AHSS-related phenomena, with a particular focus on ab initio methods, computational thermodynamics, constitutive laws as well as integrated computational materials engineering (ICME), will be discussed.

The symposium will include the following topics:
- Alloy design and/or thermo-mechanical processing of AHSS towards improved property combinations
- Micro-mechanisms of phase transformation, plasticity and damage in AHSS
- Hydrogen and liquid metal embrittlements
- Application of advanced characterization techniques on AHSS
- Advanced modelling and simulation of AHSS relevant phenomena

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