

PHYSICAL METALLURGY & ALLOY DESIGN

GRAIN REFINEMENT

Keynote: Ultra-steels: innovation of steel structures by materials evolution
K. Nagai

Keynote: Research activities on advanced steels in NERCAST
H. Dong, Y. Gan, Y. Weng

Keynote: Development of high strength and high performance steels at POSCO through HIPERS-21 Project
J-K. Choi

Keynote: Ultrafine grained steels by advanced thermomechanical processes and severe plastic deformations
I. Salvatori

Fabrication and tensile properties of ultrafine grained steels
D.H. Shin, W.G. Kim, J.Y. Ahn, K.-T. Park, N.J. Kim

The formation of ultrafine grained microstructure in a plain C-Mn steel
R. Song, D. Ponge, D. Raabe

Change of effective thickness of austenite grain during severe plastic deformation
D-W. Suh, C-S. Oh, S-J. Kim

Deformation induced ferrite transformation and grain refinement in low carbon steel
X. Sun, Q. Liu, H. Dong

Effect of shear strain on deformed microstructures of austenitic grains
T. Inoue, F. Yin, K. Nagai

Grain refinement and high precipitation hardening by combining microalloying and ultra fast cooling
C. Mesplont

Mechanical properties of an ultrafine grained C-Mn steel
R. Song, D. Ponge, D. Raabe

High strength and good ductility of bulk nanostructured meta-stable austenitic alloys
J-E. Jin, Y-K. Lee - Yonsei University, Seoul, Korea

Fracture toughness of the welded joint of new generation ultra-fine weathering steel
H. Qiu, T. Nishimura, K. Hiraoka

Improvement of hydrogen embrittlement in a tempered martensitic steel through grain refinement using undissolved cementite
Y. Kimura, K. Tsuzaki

STRUCTURE & PROPERTIES

Keynote: Innovation of conventional heat treatment and microstructural modification of steel by electromagnetic processing

Y. Zhang, X. Zhao, L. Zuo, C. Esling

Microstructure and strain distribution influence on failure properties in formable steel sheets

P. Olaru, G. Gottstein, A. Pineau

Optimizing the mechanical properties of tempered martensitic steels

A. Ardehali Barani, D. Ponge

Effect of vanadium and thermomechanical treatment on the properties of 55SiCr6

A. Ardehali Barani, L. Fei, P. Romano, D. Ponge

Effect of intergranular ferrite on hydrogen delayed fracture resistance of high strength boron-added steel

J.S. Kim, C.S. Lee, K-T. Park, D. Lee

Solidification structure and properties of Nb-V microalloyed steels

G. Cumino, A. Mannucci, M. Vedani, J.C. Gonzalez

The influence of austenite on the toughness of martensitic steels

J.W. Morris Jr.

Improvement of mechanical properties in Fe-Mn-Ti steel by alloying with Cr and Mo

M. Nili-Ahmadabadi, M. Sadeghi, H. Shirazi, S. Hossein Nedjad

High strength, toughness and nanostructure considerations for Fe/Cr/Mn/C lath martensitic steels

G. Kusinski, G. Thomas

Influence of tempering temperature on mechanical properties of ultra-high strength low-alloy steels

J. Horníková, P. Šandera, J. Pokluda

Fractal nature of acicular ferrite, and fine precipitation in medium carbon micro-alloyed forging steels

R. Villegas, A. Redjaimia, M. Confente, M.T. Perrot-Simonetta

Fundamental study of the austenite formation and decomposition in high strength low-Si, Al added Nb-Mo trip steels

J.E. Garcia-Gonzalez, C.I. Garcia, M. Hua, A.J. De Ardo

ALLOY DESIGN

Microstructural features of a new martensitic steel heat treatment: quenching and partitioning

D.V. Edmonds, K. He, F.C. Rizzo, A. Clarke, D.K. Matlock, J.G. Speer

The role of niobium in low carbon bainitic HSLA steel

K. Hulka

Quantitative evaluation of the microstructure in an Fe-Cr-C ternary martensitic steel with the aid of the system free energy concept

T. Kunieda, Y. Murata, M. Morinaga, M. Nakai, T. Koyama

Effect of Nb in solid solution on the austenite decomposition kinetic of a V-Nb-Ti microalloyed steel

M. Buhler, G.R. Gomez, T. Pérez

Acceleration of graphitisation in carbon steels to improve machinability

D.V. Edmonds, K. He

Stainless austenitic steel of superior strength

H. Berns, V. Gavriljuk

Influence of deformation and molybdenum content on acicular ferrite formation in medium carbon steels

C. Capdevila, J.P. Ferrer, F.G. Caballero, C. García de Andrés

The effect of chemical composition on the hot-deformation resistance during hot strip rolling of microalloyed steels processed at the Sidor hot strip mill

F. Siciliano, O. Marini, R.G. Bruna

The development of Nb-V microalloyed steel plate

Y. Feng

Very strong bainitic steels

F.G. Caballero, C. García-Mateo, H.K.D.H. Bhadeshia

MODELING

Towards economic design of a pressure vessel made of duplex stainless steel

M. Veljkovic, J. Gozzi

Thermodynamic modelling to support production of high nitrogen steels by different processes

F. Ruffini, O. Tassa, A. Carosi, F. Arcobello, B. Giambi

Simulation of diffusional processes during solidification in austenitic steels

D. Baldissin, L. Battezzati, M.R. Ridolfi, O. Tassa

CORROSION AND SURFACE PROTECTION

Coating technology of high strength steels without hydrogen embrittlement

W. Paatsch, V.-D. Hodoroba

PVD coating of steel strips

C. Metzner, B. Scheffel, F-H. Roegner

ADVANCED FABRICATION PROCESSES

Production and application of high strength steel

Y. Feng

Direct Strip Casting (DSC) - an option for the production of HSD[®] steel grades

M. Schäperkötter, H. Eichholz, J. Kroos, M. Niemeyer, R. Schmidt-Jürgensen, K.-H. Spitzer

WELDING

Toughness of HRC 33/44 tool steels weldments with yield strength 1100 MPa

C. Larsson, P. Hansson, P. Kihlmark

Influence of chemical composition of weld metal on the properties of welded joint of high strength steels

Z. Huang, K. Miao, L. Hu

Laser beam welding of quenched and tempered ASTM A 517 Gr.B steel

S. Missori, G. Costanza, E. Tata, A. Sili

Comparison of fatigue properties of welded TMCP steel and normalized steel

K.S. Park, S.J. Cho, C.S. Lee, Y.H. Ahn, J.S. Park, J.B. Lee

New alloying concepts for high strength steel weld metals

E. Keehan, L. Karlsson

Local mechanical and microstructural characterization of electron beam welded 15-5PH stainless steel

E. Herny, J.M. Cloue, S. Perusin, E. Andrieu, P. Lours, E. Jourdain, P. Lagain