

Current Advance in Materials and Process, Vol.14, No.4

High Temperature Processes

Lecture No.	Title	Speaker	Page
Recent Progress on the Prolongation Technology of Blast Furnace Campaign Life and Future Subjects			
01	Recent progress and prospect of the technology for prolonging campaign life of blast furnace	H.Kamano	• • • 746
02	Idea of blast furnace life improvement under high production operation	A.Shinotake	• • • 750
03	The technique developing and subject in future for polongation of blast furnace life	Y.Matsui	• • • 754
04	Development of cast copper cooling stave and its applying to blast furnace	H.Tsukiji	• • • 758
05	Longevity method of herath brick and control of metal flow in blast furnace hearth	Y.Sawa	• • • 762
06	The phenomena in blast furnace hearth and hints for furnace life extension	T.Inada	• • • 766
07	Molten iron flow and brick protecting technology at blast furnace hearth	Y.Tomita	• • • 770
Multi-phase Flow Phenomena in Iron and Steel Making Processes			
08	Modeling of turbulent agglomeration of inclusion particles in liquid metal	T.Nakaoka	• • • 774
09	Slip velocity of inclusion particle in turbulently agitated liquid steel	S.Shimasaki	• • • 778
10	Behavior of inclusion coagulation in a vessel with natural convection based on CFD	T.Ishii	• • • 782
11	Fine bubble formation through swirling flow in container	M.Iguchi	• • • 785
12	Cold model experiments on mold powder entrapment in continuous casting mold	J.Yoshida	• • • 789
13	Molten steel flow driven by linear induction motor	K.Okazawa	• • • 793
14	Multi-phase flow phenomena in blast furnace	K.Takatani	• • • 797
15	Experimental study on Gas, solid and liquid multiphase flow characteristics in two-dimensional cold model for dripping zone of a blast furnace	H.Kawabata	• • • 801
Application of New Sensing Technologies to Steelmaking Processes			
16	New trends of sensors from process control to quality control	K.Katogi	• • • 805
17	Rapid analysis of steel by inductively coupled plasma-atomic emission spectrometry with laser ablation solid sampling	Y.Ishibashi	• • • 809
18	Development of analysis method for particle size distribution and chemical composition of oxides in steel by optical emission spectroscopy	W.Tanimoto	• • • 813
19	Rapid evaluation of inclusions in steel with the use of cold crucible	H.Kondo	• • • 817
20	Development of machine diagnosis system in continuous casting process	M.Tokuda	• • • 820
21	Diagnostic technique for secondary cooling nozzle in slab continuous casters	T.Ozato	• • • 824
22	Inclusions detection in molten metals by focused ultrasounds	I.Ihara	• • • 828
23	Direct generation of compression waves in a liquid metal using a lorentz force	K.Iwai	• • • 829
24	Laser measurement of interaction between particles and velocity on steel melt surface	K.Nakajima	• • • 833
25	Measurements of bubble and liquid flow characteristics in molten metal bath	M.Iguchi	• • • 835
26	Observation of solidification behaviour by using X-rays	H.Yasuda	• • • 839

Current Advance in Materials and Process, Vol.14, No.6

Microstructure and Properties of Materials

Lecture No.	Title	Speaker	Page
Material and Application Technology for Weight Reduction of Automobile			
27	Characteristics of high strength low alloyed TRIP sheet steels with annealed martensite matrix	K.Sugimoto	• • • 1086
28	Development of 980N/mm ² class ultra high strength steel suitable for mechanical joining	K.Hasegawa	• • • 1090
29	FEM analysis of crashworthiness of hot-rolled sheet steel with excellent strain-age hardenability	J.Hiramoto	• • • 1094
30	Effects of work and bake hardening on deformation behavior of steels at high strain rates	M.Takahashi	• • • 1098
31	Improvement in crashworthiness of sheet steel members by high strength steels and fabrication processes	N.Kojima	• • • 1102
32	Press forming techniques of high strength steel sheets	J.Iwaya	• • • 1106
Cementite and its Application in Steels			
33	Production and characterization of bulk cementite	M.Umemoto	• • • 1110
34	Refinement of cementite dispersion and change in mechanical property of high-carbon steels by alloying element addition	T.Furuhara	• • • 1114
35	Lamellar structure of Fe-Al-C alloys	K.Ishida	• • • 1118
36	Structural control of pearlite transformation and carbide precipitation by magnetic field	H.Ohtsuka	• • • 1119
37	High resolution electron microscopy study of cementite in tempered martensite	T.Hara	• • • 1121
38	Microstructures of severely deformed two-phase alloys(Comparison with heavily-drawn pearlitic steel wire)	K.Hono	• • • 1123
39	Residual stress and plastic deformation behavior in pearlite steels studied by neutron diffraction	Y.Tomota	• • • 1124
40	Strain hardening design for low carbon ultrafine-grained steels with dispersion of cementite particles	A.Ohmori	• • • 1128
41	Mechanical properties of Fe-C alloys with ultra-fine grained ferrite+cementite structure through mechanical milling treatment	H.Hidaka	• • • 1132

Program of the 142nd ISIJ Meeting (September 22-24,2001)

42	Precipitation behavior of cementite and toughening by short time induction tempering of Si-Cr spring steel	K.Kawasaki	• • •	1136
Structural Control of Steels and their Properties Starting from Solidification				
43	Heterogeneous nucleus of spheroidal graphite and growth	H.Nakae	• • •	1140
44	Continuously cast 0.1 mass % C steels with high phosphorus: microstructural design and control	O.Umezawa	• • •	1141
45	Role of microstructures and defects in fatigue strength	Y.Murakami	• • •	1143
46	Super high strengthening sintered low alloy steels by utilizing segregation of alloy elements	H.Miura	• • •	1147
47	Refinement of austenitic grain size by precipitated particles or dynamic recrystallization in as-casted steels	C.Ouchi	• • •	1151
48	Variation of ferrite grain structure by changing austenite grain size and strain	S.Torizuka	• • •	1155
49	Microstructure control in tandem hot strip rolling with heavy reductions-A present situation and future development	R.Kurahashi	• • •	1157