

The timetable the 172nd ISIJ Meeting
(September 21–23, 2016 at Osaka University, Toyonaka Campus)

	Sept. 21 (Wed)		Sept. 22 (Thu)		Sept. 23 (Fri)	
	a.m.	p.m.	a.m.	p.m.	a.m.	p.m.
Session Room 1 C401 CELAS Lecture Bldg. C	---	Properties of liquid materials 1•2 [1-8] (13:00-15:50)	Technology and history of the iron and related industries in Kansai area Japan (10:50-16:50)[2,000yen]		Thermodynamics 1•2 [78-84] (9:20-11:50)	Thermodynamics of transition and tramp elements in steel for advanced sustainable steelmaking [85-89] (13:00-14:40)
Session Room 2 C402 CELAS Lecture Bldg. C	Current progress in process technology and fundamental research for lime dissolution and slag formation (9:30-17:00)[Charge-free]		The last ten years and from now in the field of research works on physicochemical properties of high temperature melts [D1-D9] (9:00-15:40)		---	---
Session Room 3 C406 CELAS Lecture Bldg. C	Numerical simulation for blast furnace [9-12] (10:00-11:20)	Young engineer session of ironmaking 1/Sintering [13-18] (13:00-15:10)	Carbon composite iron ore 1•2 [35-40] (9:30-11:40)	Reduction of iron ore/Reactions under hydrogen enriched atmosphere/Softening and melting [41-49] (13:40-17:00)	Young engineer session of ironmaking 2•3 [90-95] (9:30-11:40)	Young engineer session of coke- making 1•2/Coke making [96-104] (13:00-16:20)
Session Room 4 C302 CELAS Lecture Bldg. C	Research on technique elements aiming for new cokemaking process mid- term meeting on "Technique elements for new cokemaking process" (9:20-17:10)[1,000yen]		Mechanisms of formation behavior of casting defects and their relations to solidification microstructure 1•2 [50-57] (9:00-11:50)	Mechanisms of formation behavior of casting defects and their relations to solidification microstructure 3/ Solidification and structure control [58-67] (13:30-17:00)	Novel Processings/ Introduction of research topics in novel processing forum 1•2 [105-113] (9:00-12:10)	---
Session Room 5 C303 CELAS Lecture Bldg. C	Transport phenomena 1•2 [19-25] (9:20-11:50)	Refractories/Energy•Recycling [26-34] (13:00-16:10)	---	Hot metal treatment and Converter 1•2/Inclusion [68-77] (13:00-16:40)	---	Dust/Slag [114-121] (13:00-15:50)
Session Room 6 C301 CELAS Lecture Bldg. C	SMART system for establishment of low carbon emission and material saving ironmaking (10:00-15:25)[2,000yen]		Reconciliation of new functional development of slag with biotechnology (9:00-16:00)[Charge-free]		Iron cultural assets [128-131] (9:00-10:20)	---
Session Room 7 C308 CELAS Lecture Bldg. C	Effective use of unrecovered thermal energy in steelworks (9:50-12:00)[Charge-free]	Hydro-process for material recycling ironmaking/Effective utilization of energy and resources [122-127] (13:00-15:10)	Instrumentation [132-136] (10:00-11:40)	Control/System [137-144] (13:00-15:50)	Advanced abnormality diagnoses based on area sensing technologies [D10-D15] (9:30-12:50)	---
Session Room 8 C307 CELAS Lecture Bldg. C	---	---	Advances in processing of powders and powder metallurgy 1•2 [153-158] (9:50-12:00)	Cutting and Joining 1•2 [159-164] (13:30-15:40)	Visualization of joining and welding 1•2 [179-185] (9:30-12:00)	---
Session Room 9 C306 CELAS Lecture Bldg. C	---	Modeling of various phenomena in metal forming and its application/ Mathematical modeling [145-152] (13:00-15:50)	Rolling/Levelling•Lubrication [165-170] (9:50-12:00)	Cooling/Oxidation scale [171-178] (13:00-15:50)	Rolling force and forging force prediction model and related technologies, friction and microstructure [D16-D22] (9:45-14:50)	
Session Room 10 C201 CELAS Lecture Bldg. C	Precipitation/ Solidification•Heat treatment [186-193] (9:00-11:50)	Present conditions and maintenance for aging infrastructure (13:00-17:00)[1,000yen]	---	Modeling and Simulation 1•2 [243-252] (13:20-17:00)	Feedback to materials design assisted by advanced characterization and modeling Part III (9:00-16:30)[Charge-free]	
Session Room 11 C202 CELAS Lecture Bldg. C	Hydrogen embrittlement 1 [194-197] (10:30-11:50)	Hydrogen embrittlement 2•3 [198-206] (13:00-16:10)	Fundamental factors and characteristics evaluation of hydrogen embrittlement – midterm report (9:30-16:15)[2,000yen]		Hydrogen embrittlement 4•5 [279-286] (9:00-11:50)	Hydrogen embrittlement 6•7 [287-295] (13:00-16:10)
Session Room 12 C206 CELAS Lecture Bldg. C	---	Machine structural steel [207-210] (13:00-14:20)	Deformation and dislocation 1•2 [253-259] (9:30-12:00)	Fatigue/Deformation behavior 1•2 [260-270] (13:00-17:00)	---	Elucidation and development of control technology for factors which induce bio corrosion of structural material [D23-D27] (13:00-16:15)
Session Room 13 C101 CELAS Lecture Bldg. C	Strip steels/Cold strip steels [211-216] (9:30-11:40)	Electrical steels [217-221] (13:00-14:40)	---	Stainless steels 1•2 [271-278] (14:00-16:50)	Hot dip coating•Coating/ Coating [296-302] (9:30-12:00)	Chemical property [303-306] (13:00-14:20)
Session Room 14 C102 CELAS Lecture Bldg. C	Strength•Deformation behavior 1•2 [222-228] (9:30-12:00)	Strength•Deformation behavior 3 [229-232] (13:00-14:20)	---	Microstructural evolution in processes controlling micro- segregation and heterogeneous structure (13:00-17:00)[Charge-free]	Ferritic heat resistant steels 1•2 [307-313] (9:00-11:30)	Heat resistant alloys 1•2 [314-321] (13:00-15:50)
Session Room 15 C106 CELAS Lecture Bldg. C	---	Martensite and bainite transformation/Solution and diffusional transformation [233-242] (13:00-16:30)	ISIJ-JIM Joint Session Titanium and titanium alloys 1•2•3•4•5•6 [J1-J20] (9:00-17:30)		ISIJ-JIM Joint Session Titanium and titanium alloys 7•8 [J21-J29] (9:00-12:10)	
Session Room 16 CELAS Lecture Hall	---	Deepening of understanding of brittle crack propagation behavior of steels and new approach for high arrestability (13:00-17:20)[Charge-free]	Heterogeneous structure control: Towards innovative development of metallic structural materials (9:00-17:15)[Charge-free]		---	---
JIM-Session Room C A102 CELAS Lecture Bldg. A	---	---	ISIJ-JIM Joint Session Ultrafine grained materials –fundamental aspects for ultrafine grained structures– 1•2•3•4•5 [J30-J46] (9:30-16:40)		---	---
JIM-Session Room N B218 CELAS Lecture Bldg. B	ISIJ-JIM Joint Session Materials science of martensitic and bainitic transformations and its applications 1•2•3•4 [J47-J62] (10:00-16:30)		ISIJ-JIM Joint Session Materials science of martensitic and bainitic transformations and its applications 5•6•7•8•9 [J63-J82] (9:00-17:20)		ISIJ-JIM Joint Session Materials science of martensitic and bainitic transformations and its applications 10•11•12 [J83-J95] (9:00-14:50)	
Session Room 17 C203 CELAS Lecture Bldg. C	---	---	Elemental detection technology using LIBS [D28-D31] (9:30-11:50)	Advanced characterization of chemical composition and state of specific elements in materials [D32-D39] (13:00-16:40)	Elemental analysis/ Surface and state analysis [322-326] (9:30-11:20)	Board Meeting of Process Evaluation and Material Characterization (13:00-14:10)
	*Banquet (18:30-20:30 Hotel Hankyu Expopark) (Suita-city, Osaka) [10,000yen]		*Poster Session for Students (12:00-16:00 Osaka University Hall) *ISIJ Beer Party (17:30-19:00 Welfare Center, 4Fl.)[1,000yen]			

[] : Lecture Number
() : Lecture Time
■ : Symposium: Please ask to each of symposium room desks directly

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High Temperature Processes

Lecture No. Discussion Sessions	Title	Speaker	Page
The last ten years and from now in the field of research works on physicochemical properties of high temperature melts			
9:05-9:35			
D1	10th anniversary of forum of high-temperature thermophysical properties	H. Fukuyama	· · · 450
9:35-10:05			
D2	(ISIJ Research Promotion Grant) The ideal and the real in physical property measurements at high temperatures	M. Susa	· · · 451
10:15-10:45			
D3	(ISIJ Research Promotion Grant) State-of-the-art methodology for measurement of thermal conductivity of metals and inorganics in the molten state	H. Shibata	· · · 453
10:45-11:15			
D4	Rheological properties of Dual Phase melts	N. Saito	· · · 455
11:15-11:45			
D5	(ISIJ Research Promotion Grant) Attempt of real-time observation of interface for understanding the interfacial phenomena at high temperature	T. Yoshikawa	· · · 458
13:00-13:30			
D6	Structure and thermophysical property measurement of high-temperature liquid by containerless levitation technique	M. Watanabe	· · · 459
13:30-14:00			
D7	Influence of oxygen partial pressure on surface tension of high temperature metallic melts measured by electromagnetic levitation	S. Ozawa	· · · 462
14:10-14:40			
D8	Thermophysical property measurements of high temperature melt using electrostatic levitation methods - past and future -	T. Ishikawa	· · · 463
14:40-15:10			
D9	'The future' of study on high temperature properties	T. Tanaka	· · · 464

Instrumentation, Control and System Engineering

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Advanced abnormality diagnoses based on area sensing technologies			
9:30-9:50			
D10	Intelligent abnormality diagnosis for steel works by using adaptive area sensing	H. Tamaki	· · · 466
9:50-10:20			
D11	Ultrafast tracking vision for precise area sensing	I. Ishii	· · · 467
10:20-10:50			
D12	Data-driven fault detection by time-variant internal model control with deterioration models	O. Kaneko	· · · 471
11:00-11:30			
D13	Fault detection by state and parameter estimation based on deterioration models	T. Asai	· · · 473
11:30-12:00			
D14	Anomaly detection using machine learning and hyperparameter optimization	I. Ono	· · · 474
12:00-12:30			
D15	Detection of security incidents based on analysis of communication logging data	I. Hatono	· · · 478

Processing for Quality Products

Lecture No. Discussion Sessions	Title	Speaker	Page
Rolling force and forging force prediction model and related technologies, friction and microstructure			
9:50-10:20			
D16	Flow stress and coefficient of friction for rolling force prediction	A. Azushima	· · · 482
10:20-10:50			
D17	Relation between grain refinement strengthening and dislocation strengthening in iron	S. Takaki	· · · 486
11:00-11:30			
D18	Measurement of flow stress for cold forging analysis	N. Yukawa	· · · 487

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11:30-12:00	D19 Current modeling technology and future issues on the load prediction of skin-pass rolling	H. Kijima	· · ·	491
13:00-13:30	D20 Inverse analysis of hot flow stress and prediction of microstructure evolution using obtained flow curve	A. Yanagida	· · ·	494
13:30-14:00	D21 Rolling load characteristic on super short interval multi-pass rolling technology for ultra-fine-grained steel	S. Fukushima	· · ·	498
14:00-14:30	D22 Mathematical modeling for rolling load of single roll driven different diameter rolling	T. Morimoto	· · ·	502

Microstructure and Properties of Materials

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Elucidation and development of control technology for factors which induce bio corrosion of structural material			
13:05-13:35	D23 Estimation of adhesion work of biofilm on various plastic substrates	N. Hirai	· · · 506
13:35-14:05	D24 (ISIJ Research Promotion Grant) Microbiologically influenced corrosion by neutrophilic sulfur-oxidizing bacteria under aerobic condition	S. Wakai	· · · 507
14:05-14:35	D25 (ISIJ Research Promotion Grant) Visualization of microbial adhesion behavior to the fine arranged stainless steel welds	Y. Miyano	· · · 511
14:55-15:25	D26 (ISIJ Research Promotion Grant) Biocides for inhibition of microbiologically influenced corrosion	S. Wakai	· · · 512
15:25-15:55	D27 Substrate dependent domination of sulfate reducing bacteria	Y. Tanji	· · · 515

Process Evaluation and Material Characterization

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Elemental detection technology using LIBS			
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9:50-10:10	D29 Quantitative element detection of high temperature ferrous material using laser-induced breakdown spectroscopy	R. Liu	· · · 518
10:20-10:40	D30 Effects of atmosphere gas on LIBS signal	R. Yoshiie	· · · 521
10:40-11:00	D31 Enhancement of plasma temperature and signal intensity using coaxial long and short double-pulse LIBS	Y. Deguchi	· · · 522
Advanced characterization of chemical composition and state of specific elements in materials			
13:00-13:25	D32 Identification of inclusion particles in aggregates by cathodoluminescence method	S. Imashuku	· · · 525
13:25-13:50	D33 Quantitative microstructural characterization for age-hardenable Cu-based alloys using extraction technique	S. Semboshi	· · · 527
13:50-14:15	D34 Pair distribution analysis of transition from amorphous to crystalline state by TEM and its application to steel research	R. Nakamura	· · · 531
14:15-14:40	D35 Understanding of physical properties based on elemental distribution in silicate glasses	S. Sukenaga	· · · 533
14:50-15:15	D36 Surface reaction analysis using in-situ XPS technique	N. Ohtsu	· · · 535

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15:15-15:40

D37 Reaction analysis of reduction of calcium ferrites by using in situ XRD and XAFS R. Murao . . . 537

15:40-16:05

D38 Distribution of cupric chloro-complexes in HCl solutions by factor analysis of absorbance spectra and extended x-ray absorption fine structure spectra M. Uchikoshi . . . 541

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D39 In-situ measurements of X-ray absorption spectra of Green Rust during oxidation in aqueous solution containing phosphate and zinc ions S. Fujieda . . . 544

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2	Evaluation of temperature dependence of density and excess volume for molten Ni-Al alloys	A. Sato	• • • 547
3	Relation between excess volume and thermophysical properties of molten Fe-Pd alloys	M. Watanabe	• • • 548
4	Thermophysical properties of liquid Al-Ti	J. Wessing	• • • 549
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5	Influence of oxygen content on surface tension of Nd-Fe-B-Cu	D. Noguchi	• • • 550
6	Wettability of platinum group metal substrate to molten Li ₂ Si ₂ O ₅ and its effect on crystallization behavior under Ar atmosphere	M. Tashiro	• • • 551
7	Development of apparatus for thermal conductivity measurement of solid mould flux film	S. Takahashi	• • • 552
8	Relation between iron oxide activity and slag structure of Na ₂ O-SiO ₂ -FeO _x slag in electrical and structural equilibration with intermediate oxygen partial pressure	K. Horita	• • • 553
Numerical simulation for blast furnace			
9	Simulation of burden distribution during ore-dump by using DEM and its validation with experimental result Development of Burden Distribution Control Technology -7-	H. Mio	• • • 554
10	(ISIJ Research Promotion Grant) Analysis of softening effect for permeability of packed bed	S. Ishihara	• • • 555
11	(ISIJ Research Promotion Grant) DEM simulation of powder motion with particle contact model including intervening liquid	A. Suzuki	• • • 556
12	Modeling of trickle flow of dispersed liquid in non-spherical particle bed	S. Natsui	• • • 557
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14	High efficiency waste heat recovery by installing of circular hopper cooler in wakayama No.5-2 sintering plant	S. Teraji	• • • 559
15	Influence of melt ratio on sinter product yield	K. Hara	• • • 560
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20	Effect of interfacial tension on the transition from ligament to droplet	E. Takeuchi	• • • 565
21	Influence of viscosity and interfacial tension on the formation of metal emulsion by rising gas bubble	J. Liu	• • • 566
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27	Heat insulation for molten iron and steel containers (Reduction of heat loss in steelmaking process - 2)	A. Inoue	• • • 572
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Mechanisms of formation behavior of casting defects and their relations to solidification microstructure 2

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56 (ISIJ Research Promotion Grant) Numerical simulation of solidification grain structures and macrosegregation using cellular automaton method	Y. Natsume	• • •	601
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Mechanisms of formation behavior of casting defects and their relations to solidification microstructure 3

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Thermodynamics 1

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86	(ISIJ Research Promotion Grant) Measurement of interaction coefficient between Al and Cu in liquid iron	K. Sugiyama	• • •	631
87	Interaction parameters between Sn and Mo, Ni, or B in molten iron	H. Ono	• • •	632
88	Attempt of calculation of activity coefficient at infinite dilution in liquid fefrom surface tension in binary Fe-based alloys	M. Nakamoto	• • •	633
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Young engineer session of ironmaking 3

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Young engineer session of coke-making 1

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Coke making

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