Program of the 177th ISIJ Meeting (March 20-22, 2019)

Discussion Sessions

High Temperature Processes

Processing for Quality Products

Program of the 177th ISIJ Meeting (March 20-22, 2019)

International Organized Sessions

High Temperature Processes

Activity of young researches and engineers of microwave processing in foreign countries

Session organizer: N. Yoshikawa [Tohoku Univ.]

10:25-10:30
Opening Address: N. Yoshikawa [Tohoku Univ.]

Chair: N. Yoshikawa [Tohoku Univ.]

10:30-10:50
Int.-1 Comparisons of temperature gradients and slag iron separations in ordinary blast furnaces and microwave iron making furnace
Chubu Univ. ○M. Sato, Tokyo Tech. K. Nagata, Pradeep Metals Ltd. P. Goyal・S. Borkar ・・・ 46

10:50-11:10
Int.-2 (Invited Lecture) Mechanical challenges in microwave assisted ironmaking prototype plant
Pradeep Metals Ltd. ○S. Bagade・P. Goyal・S. Borkar・N. Chandra,
Chubu Univ. M. Sato, Tokyo Tech. K. Nagata ・・・ 48

11:10-11:30
Int.-3 In-situ spectroscopy and two-dimensional two-color thermography during microwave ironmaking process
Tohoku Univ. ○J. Fukushima・H. Takizawa ・・・ 50

Chair: M. M. Mahmoud [King Fahd Univ., Saudi Arabia]

13:00-13:20
Int.-4 (Invited Lecture) Microwave transmission challenges in prototype pig iron production facility
Pradeep Metals Ltd. ○O. Gorakh・P. Goyal・S. Borkar・N. Chandra,
Chubu Univ. M. Sato, Tokyo Tech. K. Nagata ・・・ 52

13:20-13:40
Int.-5 (Invited Lecture) Metallurgical challenges in microwave assisted ironmaking prototype plant
Pradeep Metals Ltd. ○A. Borade・P. Goyal・S. Borkar・N. Chandra,
Chubu Univ. M. Sato, Tokyo Tech. K. Nagata ・・・ 55

13:40-14:00
Int.-6 Mie theory in microwave heating of a powder
Chubu Univ. ○K. Kashimura ・・・ 58

Chair: Z. Peng [Central South Univ., China]

14:10-14:30
Int.-7 (Invited Lecture) Synthesis of silicon carbide nanowhiskers by microwave heating
Univ. Malaysia Perlis ○C. C. Lee・S. M. Kahar・C. H. Voon ・・・ 59

14:30-14:50
Int.-8 (Invited Lecture) Ultra-rapid heating of Si wafer and GaN thin film and microwave heating mechanism
Toyota Central R&D Labs. ○H. Fukushima ・・・ 63

14:50-15:10
Int.-9 (Invited Lecture) Enhancement of materials properties using microwaves
King Fahd Univ. ○M. M. Mahmoud ・・・ 67

Chair: C. C. Lee [Univ. Malaysia Perlis]

15:20-15:40
Int.-10 (Invited Lecture) Design of carbon-containing pellets for reduction under microwave irradiation
Central South Univ. ○Z. Peng・L. Ye・L. Wang・A. Anzulevich・I. Bychkov・H. Tang・
Q. Zhong・M. Rao・G. Li・T. Jiang ・・・ 71

15:40-16:00
Int.-11 (Invited Lecture) Agglomeration properties of low-TiO2 content titanomagnetite concentrates
Central South Univ. ○G. Li・C. Liu・Q. Zhong・Z. Peng・T. Jiang ・・・ 75

16:00-16:20
Int.-12 Our research history on microwave application to iron and steel field in 20 years
Tohoku Univ. ○N. Yoshikawa ・・・ 78

Program of the 177th ISIJ Meeting (March 20-22, 2019)

Committee for Social Relations with Iron and Steel Sector

Innovative perspectives and techniques in a study of cultural materials

Opening Address: E. Izawa [Kyush Univ.], A. Giumlia-Mair [AGM Archeoanalisi]

Chairs: E. Izawa [Kyushu Univ.], A. Giumlia-Mair [AGM Archeoanalisi]

9:35-10:10

Int.-13 (Invited Lecture) Antiqua-inspired materials-exploring ancient technologies to inspire sustainable design
MIT ○A. Masic ・・・ 81

10:10-10:35

Int.-14 Application of quantum beams to cultural objects: Toward elucidation of the manufacturing techniques and materials that are being lost
Showa Women's Univ. ○M. Tanaka, Hungarian Academy of Sciences L. Szentmiklosi ・・・ 82

Chairs: M. Tanaka [Showa Women's Univ.], Admir Masic [MIT]

10:40-11:15

Int.-15 (Invited Lecture) Golden and silvery surfaces on ancient metal objects
AGM Archeoanalisi ○A. Giumlia-Mair ・・・ 83

11:15-11:40

Int.-16 ^{14}C ages and calendar years of Japanese swords and nails measured with accelerator mass spectrometry
Tokyo Tech. ○K. Nagata ・・・ 84

Chairs: T. Nakanishi [Kyushu Univ.], A. Arribas [Akita Univ.]

13:00-13:35

Int.-17 (Invited Lecture) Utilization of lead in Japan during the age of discovery
Teikyo Univ. ○Y. Hirao ・・・ 88

13:35-14:10

Int.-18 (Invited Lecture) 10/25 years of lead isotope archaeology in Southeast Asia
French National Centre of Scientific Research ○T. O. Pryce ・・・ 92

Chairs: K. Nagata [Tokyo Tech.], T.O. Pryce [French National Centre of Scientific Research]

14:15-14:40

Int.-19 The adaptation of lead isotope data to ternary diagrams: An improved provenancing methodology for archaeological and modern materials
Ritsumeikan Univ. ○B. Sabatini, Deutsches Bergbau-Museum Bochum Y. Hsu ・・・ 93

14:40-15:05

Int.-20 Status and prospects of non-destructive element and isotope analysis with negative muons
Osaka Univ. ○A. Sato, Okayama Univ. K. Minami, Osaka Univ. K. Ninomiya・K. Terada ・・・ 94

Chairs: K. Mizumoto [Tokyo Univ. of the Arts], B. Sabatini [Ritsumeikan Univ.]

15:10-15:35

Int.-21 Japanese silver mining from 674 to early seventeenth centuries and lead isotopic ratios of silver ores
Kyushu Univ. ○E. Izawa・T. Nakanishi ・・・ 95

15:35-16:10

Int.-22 (Invited Lecture) Silver isotopes in archeometry: Variation and fractionation of Ag in ore deposits
Akita Univ. ○A. Arribas, Juniata College R. Mathur ・・・ 99

16:10-16:15

Concluding Remarks: A. Giumlia-Mair [AGM Archeoanalisi]

16:15-16:20

Closing Address: Closing Address: E. Izawa [Kyush Univ.]

Program of the 177th ISIJ Meeting (March 20-22, 2019)

High Temperature Processes

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Environmental, Energy and Social Engineering

Instrumentation, Control and System Engineering

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Processing for Quality Products

Microstructure and Properties of Materials

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Program of the 177th ISIJ Meeting (March 20-22, 2019)

Hydrogen embrittlement 8

Hydrogen embrittlement 9

Phase transformation 3

Phase transformation 4

Phase transformation 5

Phase transformation 6

Fatigue

Process Evaluation and Material Characterization

Program of the 177th ISIJ Meeting (March 20-22, 2019)

ISIJ and JIM Joint Sessions

Ultrafine grained materials -fundamental aspects for ultrafine grained structures- 3