

International Symposium on Sustainable Ironmaking
UNSW Conference & Residential Centre, AGSM Building, Kensington
Thursday, 29 July 2010

Symposium Co-Chairs:

Scientia Professor Veena Sahajwalla
 Centre for Sustainable Materials Research & Technology
 (SMaRT@UNSW)
 University of New South Wales, Sydney, Australia

Professor Masanori Iwase
 Thermochemistry Research Group
 Department of Energy Science & Technology, Kyoto University, Kyoto,
 Japan

Official Opening

8.30 – 9.00

Registration and Arrival Coffee

9.30 – 9.35

Introduction: Scientia Professor Veena Sahajwalla, Director of SMaRT@UNSW

9.35 – 9.45

Official Opening: Her Excellency, Governor General of Commonwealth of Australia, Ms Quentin Bryce, AC

9.45 – 9.55

Professor Les Field, Deputy Vice-Chancellor (Research), UNSW
Sustainability Research at UNSW

Plenary Session

9.55 – 10.00

Plenary Session Chairs: Masanori Iwase, Veena Sahajwalla

10.00 – 10.30

Keynote Address: Oscar Gregory, BlueScope Steel, AUSTRALIA
Sustainable Ironmaking in the 21st Century - An Australian Perspective
 Co-authors: John Nowlan, John Mathieson, Paul Zulli

10.30 – 11.00

Break

Plenary Session Chairs: Paul Zulli, Veena Sahajwalla

11.00 – 11.30

Keynote Address: Masanori Iwase, Kyoto University, JAPAN
Factors Affecting the Sustainability of Steel Industry

11.30 – 12.00

Keynote Address: Arun Kumar Jagatramka, Gujarat NRE Coke, INDIA
Sourcing metallurgical coal / coke – key challenge to today's iron & steel making

12.00 – 12.30

Keynote Address: Kiichiro Kurihara, Nippon Steel Corporation, JAPAN
Development of Iron-making Technologies in Japan
 Co-author: Takashi Miwa

12.30 – 2.00

Lunch

Professor Richard Henry, Deputy Vice-Chancellor (Academic), UNSW
Welcome to UNSW

Professor Merlin Crossley, Dean of Faculty of Science, UNSW
International Engagement and Research Collaborations

Session 1: Advanced Processing and Characterisation of Raw Materials and Waste Resources

Session 1 Chairs: Oscar Gregory, Manabu Iguchi, Arun Kumar Jagatramka, David French

2.00 – 2.30

Keynote Address: Meng Qingbo, Sinosteel, CHINA
Application in Metallurgical Industries of Semi-Coke Produced from Low Rank Coals in China

2.30 – 3.00

Graham O'Brien, CSIRO Earth Science & Resource Engineering, AUSTRALIA
Quantifying the influence that the composition of the individual coal grains in coke oven feed has on coke quality
 Co-Authors: Merrick Mahoney, Alan Pickup, Karryn Warren

3.00 – 3.30

Jim Craigen, ACALET, AUSTRALIA
Update on ACA COAL21 Fund; funding, strategic intent, status of projects

3.30 – 4.00

Shoji Taniguchi, Tohoku University, JAPAN
Electromagnetic Processing of Materials (EPM) and Its Applications to Environmental Engineering
 Co-Authors: Shin-ichi Shimasaki, Jong-Soo Park, Kazuyuki Ueno

4.00 – 4.20

Break

Session 1 Chairs: Mike Bannear, Jim Craigen, Shoji Taniguchi

4.20 – 4.50

John Planner, Introspec Consulting, AUSTRALIA
A Sustainable Approach to Manage Dust Emission during Transport of Iron Ore and Coal

4.50 – 5.20

Takehiko Kumagai, Hokkaido University, JAPAN
Effect of mechanical offset agitation on mixing
 Co-Authors: Manabu Iguchi, Tatsuya Ohmi, Shingo Sato

5.20 – 5.50

David French, CSIRO Energy Technology, AUSTRALIA
Factors that influence the reactivity of the carbonised inertinite- and vitrinite-rich fractions with carbon dioxide
 Co-authors: Mihaela Grigore, Richard Sakurovs, Veena Sahajwalla.

5.50 – 6.00

Panel Discussion

Chairs: Mike Bannear, Jim Craigen, Kurihara Kiichiro, Meng Qingbo

7.00 – 10.00

Symposium dinner

International Symposium on Sustainable Ironmaking
Friday, 30 July



Session 2: Innovative Developments in Ironmaking Technologies

Session 2 Chairs: Fumitaka Tsukihashi, Dave Osborne, Garth Peters

- 9.00 – 9.30 **Keynote Address: Mike Bannear**, OneSteel – Whyalla, **AUSTRALIA**
Conversion of the OST pellet plant from hematite to magnetite feed and the development of an energy based efficiency program
- 9.30 – 10.00 **Mansoor Al-Harbi**, SABIC T&I, **SAUDI ARABIA**
HADEED - The Saudi Iron & Steel Company - Working towards a sustainable future
Co-Author: Mansour Al-Harbi, Mohammad Essa Samman
- 10.00 – 10.30 **Masakata Shimizu**, Kyushu University, **JAPAN**
View Points and Possibility for Innovation of Blast Furnace Ironmaking
Co-authors: Kouki Nishioka, Takayuki Maeda, Koichiro Ohno
- 10.30 – 10.50 Break

Session 2 Chairs: Masakata Shimizu, John Mathieson, Christer Ryman

- 10.50 – 11.20 **Garth Peters**, Hatch, **AUSTRALIA**
Clean Green Steel Making- Assessing the Technology Options
Co-Authors: Leigh Harris, Michiel Freislich, Steve Gale
- 11.20 – 11.50 **Fumitaka Tsukihashi**, The University of Tokyo, **JAPAN**
Measurement of phase diagrams and in-situ observation of melting and solidifying behaviors for the CaO-SiO₂-FeOx-Al₂O₃-MgO system at various oxygen partial pressures
Co-Author: Hiroyuki Matsuura
- 11.50 – 12.20 **Yansong Shen**, UNSW, **AUSTRALIA**
Technologies for Sustainable Blast Furnace Ironmaking
Co-Authors: Jun-ichiro Yagi, Aibing Yu
- 12.20 – 2.00 Lunch

Session 3: Environmental Advances Associated With Iron and Steel Industry

Session 3 Chairs: Syed Niaz Ahsan, Arun Kumar Jagatramka, Meng Qingbo

- 2.00 – 2.30 **Keynote Address: John Mathieson**, BlueScope Steel Research, **AUSTRALIA**
Progress of the Australian Steel Industry CO₂ Breakthrough Program
Co-Authors: Phillip Ridgeway, Sharif Jahanshahi, Michael Somerville, Dongsheng Xie, Alex Deev
- 2.30 – 3.00 **Takao Harada**, Kobe Steel, **JAPAN**
Greener Steelmaking by Direct Reduction Process
- 3.00 – 3.30 **Eiki Kasai**, Tohoku University, **JAPAN**
Introduction of the Research Projects of ISIJ for the Flexible and Low Carbon Iron Ore Sintering Technology
- 3.30 – 3.50 Afternoon Break

Session 3 Chairs: Takao Harada, John Mathieson, Eiki Kasai

- 3.50 – 4.20 **Christer Ryman**, MEFOS, **SWEDEN**
Use of Process Integration methods for evaluation of energy and GHG emission strategies in ironmaking and steelmaking
- 4.20 – 4.50 **Dave Osborne**, Xstrata Coal Queensland, **AUSTRALIA**
Value of Coal Beneficiation Development
- 4.50 – 5.20 **Sushil Gupta**, UNSW, **AUSTRALIA**
Understanding Coke Behaviour in an Operating Blast Furnace
Co-Authors: ZoZhou Ye, Olavi Kerkkonen, Riku Kanniala, Veena Sahajwalla
- 5.20 – 5.50 Panel Discussion - **Chairs: Takao Harada, Eiki Kasai, John Mathieson, Christer Ryman,**
- 5.50 – 6.00 Wrap Up