

COOLIT 2023

International Symposium on CO₂-Lean Ironmaking Technology : Road to Green Steel

June 25 - 28, 2023

1F Grand Ballroom,
Hilton Gyeongju,
Korea

Hosted by

Graduate Institute of Ferrous &
Energy Materials Technology (GIFT)

Value Creating University

POSTECH

POHANG UNIVERSITY OF SCIENCE AND TECHNOLOGY

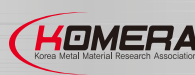
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**H HYUNDAI
STEEL**

COOLIT 2023

June 25 - 28, 2023 1F Grand Ballroom, Hilton Gyeongju, Korea



Symposium Topic

- **Strategies and efforts for reaching green steel production**
- **Innovative advances in current ironmaking technology**
 - Low carbon raw materials
 - H₂ bearing gas injection to blast furnace
 - Oxygen blast furnace with CCU
- **H₂-based direct reduction technology**
 - Fluidized bed/Shaft based DR production technology
 - Electric Smelting/Arc Furnace (ESF/EAF)

Organizing Committee

Chair Sung-Joon Kim (POSTECH)
Co-Chair Dong-Joon Min (Yonsei U.)
SeDon Choo (KIM, POSCO)

Committee

Youn-Bae Kang (POSTECH)
Sung-Mo Jung (POSTECH)
Joo Hyun Park (Hanyang U.)
In-Ho Jung (Seoul U.)
Joonho Lee (Korea U.)
Yongjo Kang (Dong-A U.)

Young Joo Kim (KOMERA)
Sang-Ho Yi (POSCO, POSTECH)
Hyeong Jin Kim (Hyundai Steel)
Il Sohn (Yonsei U.)
Yongsug Chung (Tech U. of Korea)

Invited Speakers

David Leigh (Rio Tinto, Australia)
Dong-Joon Min (Yonsei University, Korea)
Hyeong Jin Kim (Hyundai Steel Company, Korea)
Il Sohn (Yonsei University, Korea)
Jian Pan (Central South University, China)
Jianliang Zhang (University of Science and Technology Beijing, China)
Joo Hyun Park (Hanyang University, Korea)
Junjie Sun (Baosteel, China)
Myoung-Kyun Shin (POSCO, Korea)
Nigel Tame (BHP, Australia)
P. Chris Pistorius (Carnegie Mellon University, USA)
Paul Zulli (University of Wollongong, Australia)
Sakamoto Mitsuru (KOBE STEEL, LTD., Japan)
Shigeru Ueda (Tohoku University, Japan)
Shoji Ushio (Nippon Steel Corporation, Japan)
Sung-Mo Jung (Pohang University of Science and Technology, Korea)
Tom Honeyands (Newcastle University, Australia)
Woong-Seong Chang (Office of Strategic R&D Planning, Korea)
Yasuo Kishimoto (JFE Steel Corporation, Japan)
Zulfiadi Zulhan (Institut Teknologi Bandung, Indonesia)

Participants Registration Available From



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from
MAY 8



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Program at A Glance

June 25 (Sun)

Welcome Function

June 26 (Mon)

Technical Sessions
Banquet

June 27 (Tue)

Technical Sessions

June 28 (Wed)

Plant Tour
(POSCO & POSTECH)

Symposium Program

Day 0 - 6.25(Sun) / Hilton Gyeongju 1F Pine Room

Time	
17:30~18:30	Welcome Function

Day 1 - 6.26(Mon) / Hilton Gyeongju 1F Grand Ballroom

Time	Session	Session chair	Program	Speaker
09:00~09:30	Opening		Welcome message	
09:30~09:50			Towards Low-GHG Emissions from Energy Use in Iron & Steel Sector	Woong-Seong Chang (Office of Strategic R&D Planning, Korea)
09:50~10:00			Photo	
10:00~10:35	Session1	Sang-Ho Yi (POSCO, POSTECH)	Technological Approach to Carbon Neutrality in Korea's Steel Industry	Dong-Joon Min (Yonsei University, Korea)
10:35~11:10			JFE Steel's Initiatives toward Carbon Neutrality and the Challenges of Steelmaking Technology in the Carbon Neutral Steelmaking Process	Yasuo Kishimoto (JFE Steel Corporation, Japan)
11:10~11:45			Efficiency Increase & Technological Innovation: Accelerate the Development of a New Pattern of Low-carbon Green Ironmaking	Jianliang Zhang (University of Science and Technology Beijing, China)
11:45~11:50			Summary & Discussion	
11:50~13:30	Lunch / 1F Grand Ballroom			
13:30~14:05	Session2	Joo Hyun Park (Hanyang U.)	Lower emissions steel production: challenges to overcome through R&D	Paul Zulli (University of Wollongong, Australia)
14:05~14:40			Demonstrating Pathways to a Green End State: BHP's Steel Decarbonisation Program	Nigel Tame (BHP, Australia)
14:40~15:15			Ferronickel and Iron Production with Low CO ₂ Emissions	Zulfiadi Zulhan (Institut Teknologi Bandung, Indonesia)
15:15~15:20			Summary & Discussion	
15:20~15:40	Coffee break / B1			
15:40~16:15	Session3	Sung-Mo Jung (POSTECH)	The Research Progress of HyCROF	Junjie Sun (Baosteel, China)
16:15~16:50			Strategy for Carbon Neutrality in the KOBELCO Group	Sakamoto Mitsuru (KOBELCO STEEL, LTD., Japan)
16:50~17:25			Ironmaking using raw sustainable biomass and microwave energy	David Leigh (Rio Tinto, Australia)
17:25~17:30			Summary & Discussion	
18:00~	Banquet / 1F Grand Ballroom			

Day 2 - 6.27(Tue) / Hilton Gyeongju 1F Grand Ballroom				
Time	Session	Session chair	Program	Speaker
09:00~09:35	Session4	Youn-Bae Kang (POSTECH)	Electric Smelting Furnace for Alternative Hot Metal Production from Australian Iron Ores	Tom Honeyands (Newcastle University, Australia)
09:35~10:10			Hyundai Steel's Pathway to Green Steel: Developing a Flexible and Hybrid Production System through Innovative Technologies	Hyeong Jin Kim (Hyundai Steel Company, Korea)
10:10~10:15			Summary & Discussion	
10:15~10:35	Coffee break / B1			
10:35~11:10	Session4	Youn-Bae Kang (POSTECH)	Refining Process and Slag Properties for Green Steel	Shigeru Ueda (Tohoku University, Japan)
11:10~11:45			Challenges in electric steelmaking technology for reduction of CO ₂ emissions	Joo Hyun Park (Hanyang University, Korea)
11:45~11:50			Summary & Discussion	
11:50~13:30	Lunch / 1F Grand Ballroom			
13:30~14:05	Session5	In-Ho Jung (Seoul U.)	Reaction challenges in hydrogen reduction	P. Chris Pistorius (Carnegie Mellon University, USA)
14:05~14:40			Update on the development of hydrogen-based ironmaking process at POSCO	Myoung-Kyun Shin (POSCO, Korea)
14:40~15:15			Evaluation of Iron Ore Fines for Hydrogen Reduction in Fluidized Bed	Shoji Ushio (Nippon Steel Corporation, Japan)
15:15~15:20			Summary & Discussion	
15:20~15:40	Coffee break / B1			
15:40~16:15	Session5	Yongjo Kang (Dong-A U.)	Recent progress and prospect of low-carbon and hydrogen metallurgy in Chinese steel industry	Jian Pan (Central South University, China)
16:15~16:50			Critical perspectives in the utilization of H-DRI from ironmaking to steelmaking : Following our dream	Il Sohn (Yonsei University, Korea)
16:50~17:25			Technological Pathway of Ore Reduction by H2 toward Carbon Neutral Steel Production in 2050	Sung-Mo Jung (Pohang University of Science and Technology , Korea)
17:25~17:30			Summary & Discussion	
17:30~17:40	Closing		Closing address	

Day 3 - 6.26(Wed) / POSTEC, POSCO (Pohang)	
Time	
09:00~11:30	POSTECH tour
12:00~13:00	Lunch
13:00~16:00	POSCO Plant tour