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Visit to Central Iron and Steel Research Institute
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On 20 May 2025, Prof. K. F. Chung, Director of CNERC, led a research delegation to Beijing for a collaborative exchange with the Central Iron and Steel Research Institute (CISRI). The delegation held in-depth discussions with Prof. G. H. Feng and his research team from the Institute of Metallurgical Technology, focusing on advanced metallurgical technologies for high strength steel.

Visiting Delegation:

- Prof. K. F. Chung, Director of CNERC
- Dr. H. C. Ho, Deputy Executive Secretary of CNERC
- Dr. M. F. Zhu, Postdoctoral Fellow of CNERC
- Dr. H. Jin, Postdoctoral Fellow of CNERC
- Dr. X. F. Yang, Postdoctoral Fellow of CNERC

Hosting Team:

- Prof. G. H. Feng and his research team, including: Prof. Y. B. Hu, Dr. X. Z. Zhou and Dr. X. B. Zhang, Institute of Metallurgical Technology, CISRI
- Prof. H. P. Liu, Material Digital R&D Center, CISRI
- Prof. Y. C. Qi and Dr. Y. Zuo, Welding Technology Research and Development Centre, CISRI

The visit aimed to deepen bilateral collaboration in the field of high strength steel, with discussions centring on the material performance requirements and long-term service conditions for structural steel in the construction industry. The exchange laid a solid foundation for future research cooperation between the two teams.

Academic exchange between CNERC and CISRI on metallurgical and welding technologies of high strength steel
From left: Dr. X. F. Yang, Dr. M. F. Zhu, Dr. H. Jin, Dr. H. C. Ho, Prof. K. F. Chung, Prof. G. H. Feng, Prof. Y. B. Hu, Dr. Y. Zuo, Dr. X. Z. Zhou, and Dr. X. B. Zhang.

Meeting Agenda:

- 9:00 am — Opening remarks by leaders, outlining meeting objectives and collaboration goals

- 9:10 am
  Report 1: Research on corrosion-fatigue behaviour of S690 high strength steel
  Presenter: Dr. X. F. Yang

- 9:30 am
  Report 2: Effects of welding on structural performance of high strength steel thick welded sections
  Presenter: Dr. H. Jin

- 9:50 am
  Report 3: Numerical simulation on high strength S690 and S960 stocky columns consider phase transformation
  Presenter: Dr. M. F. Zhu

- 10:30 am
  Report 4: Welding and process technology research for high-strength low-alloy structural steel
  Presenter: Dr. Y. Zuo

- 10:50 am
  Report 5: Development and achievements of Material Digital Simulation Platform of CISRI
  Presenter: Prof. H. P. Liu

- 2:00 pm
  Report 6: Machine learning-based composition design for high-yield-strength TWIP steel
  Presenter: Dr. X. Z. Zhou

- 2:30 pm
  Report 7: Impact toughness enhancement in carbide-free bainitic steel
  Mechanisms of strain hardening effect on low-temperature toughness in high strength steel
  Corrosion behaviour of high strength steel in complex environments
  Presenter: Prof. G. H. Feng

Dr. Jin presents research on numerical simulation technology for high-strength steel welding, exchanging insights with experts.

Both teams engaged in active discussions, detailing their research focuses and technical strengths while conducting in-depth technical exchanges on key metallurgical and welding challenges.

The afternoon session focused on four collaborative projects:

1. Corrosion behaviour of high strength steel in complex environments
2. Coupled corrosion-stress mechanisms in high strength steel
3. Numerical simulation of HAZ microstructure in high strength steel
4. Microstructure property control technology for high strength steel

During the meeting, the CNERC delegation shared recent progress in the research on corrosion-fatigue behaviour, welding technologies, and numerical simulations of high strength steel. In turn, the team from CISRI's Institute of Metallurgical Technology presented their work on welding techniques for high-strength low-alloy structural steel, machine learning-based steel design, and carbide-free bainitic steel. Both sides conducted a thorough exchange on the practical applications and engineering demands of high strength steel in the construction industry, reaching a preliminary consensus on potential directions for future cooperation.

Prof. K. F. Chung and Prof. G. H. Feng, at the entrance hall of the Institute of Metallurgical Technology, CISRI.

Founded in 1952, CISRI is China's largest and most authoritative comprehensive R&D institution in metallurgy. Transformed in 1999 into a centrally administered high-tech enterprise, CISRI became a wholly owned subsidiary and core R&D platform of China lron & Steel Research institute Group Co., Ltd. in early 2007.

As China's national hub for advanced metallic materials and metallurgical innovation, CISRI hosts key national platforms including the "National Engineering and Research Center for Advanced Steel Technology". It has spearheaded critical material development and core technology breakthroughs, providing essential support for: "Two Bombs and One Satellite" Project, "Long March Launch Vehicles", Domestically-built aircraft carrier, and "Shenzhou Crewed Spacecraft". CISRI continues to make pivotal contributions to national economic development and defence modernization.