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Main Topics:

Ironmaking
- Fundamentals in cokemaking
- Coal blending practice
- Latest developments in slot oven plant technology and design
- Latest developments in heat recovery oven plant technology and design
- New cokemaking technologies
- Coke oven repair techniques and life prolongation
- Measurement of wall displacement and pressure of coke oven chamber
- Coke plant operation, instrumentation and automation
- Improving productivity and safety
- Stamp charging technology
- Coke oven gas cleaning and utilization of by-products
- Graphite formation at coke ovens
- Coke quenching technologies
- Coke oven refractories

Sintering and pelletising
- Fundamentals in sintering
- Sinter plant construction and layout
- Sinter process optimisation
- Sinter plant operation and automation
- Use of concentrates in sinter mix
- Sinter quality
- Sinter cooling
- Sinter plant waste gas cleaning
- Energy recovery and use in sinter plants
- Fundamentals in pelletising
- Pellet plant construction and layout
- Pellet plant operation and automation
- Production of acid and fluxed pellets
- Use of hematite and/or magnetite pellet feed for pellet production
- Pellet qualities
- Reduction of pellets under different conditions

Blast furnace ironmaking
- Fundamentals in blast furnace ironmaking
- Blast furnace construction and design
- Blast furnace process optimization and automation
- Modern process control techniques
- Blast furnace relinings
- Blast furnace campaigns life extension
- Blast furnace refractories and cooling
- Blast furnace charging
- Blast furnace productivity
- Blast furnace hearth management
- Hot metal and slag quality
- Coke quality requirements and reduced coke rates
- Injection of auxiliary reductants (coal, oil, gas, plastics) and oxygen
- Hot blast stoves
- New blast furnaces
- Blast furnace liquid management and casting practice
- Gas cleaning devices
- Top gas expansion and recovery turbines
- Oxygen and top gas recycling blast furnace
- Alternative blast furnace processes

Direct reduction and smelting reduction
- Fundamentals in direct reduction and smelting reduction
- Production and use of DRI and HBI
- Gas-based DRI processes and new developments
- Hydrogen based DRI processes
- Coal-based DRI processes and new developments
- Transport and charge of hot DRI to electric arc furnaces
- Shipments of DRI and HBI
- Current status of Corex and Finex processes
- Status of Hisarna process
- Other smelting reduction processes

Industry 4.0 in the steel industry
- Cyber Physical Systems
- Horizontal Integration
- Vertical Integration
- End-to-end engineering
- Big Data
- Self organisation
- Material tracking, material genealogy
- Through Process Quality Control
- Predictive Maintenance
- IT-Aspects (Cyber Security, IT-Network, Standardisation, etc.)
- Application examples in steel industry

The topics include all aspects in Industry 4.0 (Cyber physical systems, horizontal and vertical integration, big data...)
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IRONMAKING

STEELMAKING

ROLLING AND FORGING

STEEL MATERIALS AND THEIR APPLICATION, ADDITIVE MANUFACTURING, SURFACE TECHNOLOGIES

ENVIRONMENTAL AND ENERGY ASPECTS

The topics include all aspects in Industry 4.0 (Cyber physical systems, horizontal and vertical integration, big data...)

STEELMAKING

Oxygen steelmaking

- Hot metal pretreatment
- Current status and new developments in converter technology
- New installations and revampings
- Fundamentals of oxygen steelmaking process
- Converter charge materials and their preparation
- Ladle metallurgy
- Converter refractory linings and durability
- Plant operation experiences
- Automation and on-line process analyses
- By products, recycling and environment
- Waste heat recovery
- Modelling and simulation
- Slag treatment

Electric steelmaking

- Equipment
- Current status and new developments in EAF technology
- Fundamentals in electric steelmaking
- Process control, automation and modelling
- Metallurgy of electric steelmaking
- Ladle metallurgy
- Electrodes
- Injection of coal
- Refractory linings and durability
- Use of DRI and HBI in electric arc furnaces
- Energy efficiency and energy recovery, Ladle metallurgy
- Waste gas treatment
- Slag treatment

Continuous casting, near-net shape casting and ingot casting

- Formation of non-metallic compounds in the solidification process
- Metallurgy and flow control in the tundish
- Refractory materials and tundish lining
- Heats scheduling and management
- Continuous casting technology
- Mould performance and initial solidification
- Mould lubrication
- Flow control in the tundish, mold and strand
- Metallurgy of ingots for forging processes

- Control of solidification structures and management of defects
- Special technologies for high performance steels
- Steel yield and productivity improvements
- Application and control of electromagnetic fields
- Metallurgical and operational results
- Quality control and detection of defects
- Solidification, segregation and high temperature behavior
- Process development and optimization
- Computer simulations and modelling of solidification, ingot castings and CC process
- Automation, maintenance, on-line machine control
- New installations and revampings
- Safety and environmental aspects
- Downstream processing of CC products and of ingots
- New casting processes
- Product quality (surface defects, internal quality)
- In-line rolling
- Near net shape casting, thin and medium slabs
- Strip casting, beam blank casting
- Research in progress
- Remelting

Industry 4.0 in the steel industry

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- **STEEL MATERIALS AND THEIR APPLICATION, ADDITIVE MANUFACTURING, SURFACE TECHNOLOGIES**
- **ENVIRONMENTAL AND ENERGY ASPECTS**

The topics include all aspects in **Industry 4.0** (Cyber physical systems, horizontal and vertical integration, big data...)

**ROLLING AND FORGING**

**Rolling of long and flat products**
- Hot strip rolling
- Cold strip rolling and processing lines
- Plate Rolling
- Rod and bar rolling
- Rolling of tubes, sections and rails
- Annealing, galvanizing and finishing
- Processing of new steel grades
- Improved efficiency and product quality
- Rolls for Rolling (Wear and lubrication, grinding, new materials, roll surface, roll inspection)
- Digitalization and Smart Factory-solutions for processing industry
- Virtualization and HMI* in rolling and finishing operations
- Assistance systems in rolling and finishing operations
- Sensors and control, online measurement technologies
- Modelling and simulations
- Material tracking and material flow control: transportation and logistics
- Process and production control, process automation
- Plant upgrades and new equipment developments
- Maintenance: plant availability and condition monitoring
- Environmental issues
- Reheating and descaling

*HMI = Human Machine Interface

**Forging**
- Latest developments in forging plants
- Optimization of the forging process
- Process simulation
- Technical measurement of forgings
- Measures for ensuring quality
- Descaling
- Furnace technology
- Burner technology
- Heat treatment process
- Energy Management

**Industry 4.0 in the steel industry**
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**Steel materials and their application**
- High strength steels for flat products for the automotive industry
- Hot formed steel parts for the automotive industry
- High strength steels for bars and wire rods for automotive and engineering industry
- Alloy and special steels for massive lightweight forging
- Lightweight construction concepts for agriculture devices
- Advanced high strength steels in truck construction
- Advanced high strength steels in mobile crane construction
- High strength fine grain steels for construction applications
- New steel-concepts in bridge constructions
- High strength steel for wind energy constructions
- High temperature steels for energy technology
- Tool steels for forming high strength materials
- Tool steels for plastic moulds and extrusion pressure tools
- The use of stainless steel in the food industry
- Additive Manufacturing of special steel components
- Modern joining technologies in multi-material constructions
- Solutions for hydrogen embrittlement of high strength steels

**Additive manufacturing**
- Metallurgy and technology of powder production
- Steel grades for the use in additive manufacturing, powder quality
- Properties and quality of additive manufactured components
- Potential use and application of additive manufactured structures in the steel industry

**Surface technologies**
- Quality control and management of defects (production)
- Applying new surface layers (production)
- New surface technologies to improve corrosion and wear resistance (application)
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**Environmental and energy aspects in iron and steelmaking**
- Energy savings and energy efficiency optimization
- Alternative fuels and reductants in iron and steelmaking
- Injection of waste plastics, flue dust or secondary raw materials into the blast furnace
- Use of waste gas and waste heat
- Challenges of renewable gases in iron and steelmaking
- Use of secondary raw materials and wastes in iron and steelmaking
- Emission avoidance from iron and steelmaking
- By-product management in iron and steel production
- Improvement, treatment and usage of iron and steelmaking slags
- Water cascades and recirculation
- Recovery of process chemicals
- Examination and remediation of contaminated sites
- New and alternative technologies

**Efficiency increase and CO₂ mitigation in iron and steelmaking**
- Strategies for energy efficiency increase
- Lowering fuel costs
- CO₂ capture in iron and steelmaking processes
- CO₂ storage and use from iron and steelmaking
- Energy management systems
- Use of CO₂ from process gases for new products
- Energy and waste heat recovery
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CCD CONGRESS CENTER DÜSSELDORF
24 – 28 JUNE 2019
FIRST ANNOUNCEMENT

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  - Blast furnace ironmaking
  - Direct reduction and smelting reduction
  - Industry 4.0 in the steel industry

- **STEELMAKING**
  - Oxygen steelmaking
  - Electric steelmaking
  - Continuous casting, near-net shape casting and ingot casting
  - Industry 4.0 in the steel industry

- **ROLLING AND FORGING**
  - Rolling of long and flat products
  - Forging
  - Industry 4.0 in the steel industry

- **STEEL MATERIALS AND THEIR APPLICATION, ADDITIVE MANUFACTURING, SURFACE TECHNOLOGIES**
  - Steel materials and their application
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