Contribution ID: **355** Type: **Oral**

Digitalization of Material Properties Across the Entire Process Chain

Thursday 9 October 2025 14:00 (20 minutes)

Steel-intensive-industrial sectors face ongoing challenges in balancing agility, demographic change and technological renewal. A key solution lies in the evolution of digitalization, moving beyond traditio-nal ERP (order processing), PLM (product development), and MES/BDE (production control) systems. The next stage of digital transformation integrates materials technology and manufacturing processes into enterprise IT infrastructures, enabling a more comprehensive approach to knowledge manage-ment and the possibility to remain as independent as possible regarding additional software. Beyond data collection and processing, the presented best practice contains of an expanded framework fos-tering knowledge creation through a model library that supports fact-based decision-making. A crucial aspect is understanding and modeling the evolution of steel properties along the entire process chain. We present an advanced digitalization environment that enhances the integration of steel materials and processes to accelerate product and process development.

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Session Classification: Digital Transformation & Industry 4.0

Track Classification: Digital tranformation