



Invitation to the 76th AMAP Colloquium

Presentation by

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coilDNA -

Door Opener to the Internet of Metals (IoM)

On Thursday, **April 20th, 2023 at 4 p.m.**
with subsequent discussion at AMAP

All interested persons are sincerely invited to the AMAP foyer.
Snacks and refreshments will be available.

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coilDNA - Door Opener to the Internet of Metals (IoM)

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Abstract

Industrial metals such as aluminium are processed by means of melting, casting, rolling, and different kinds of heat and surface treatment. In each step, countless sets of data are generated which are relevant to the quality and the properties of the semi-finished product (coils, strips, plates, profiles).

In further processing steps, single pieces of metal are usually cut from these semi-finished products. In this process step the data link between the single piece and the parent product is broken. The single piece usually does not carry any information about its material composition, the manufacturer, the position within the parent product, or its mechanical properties or quality-relevant production parameters.

coilDNA, an Austrian start-up company based in Linz, has developed a revolutionary, patented technology that gives individual pieces of metal an identity. By making these metal products smart they may be connected to the Internet as well. So IoT - Internet of Things - the concept of connecting smart devices to the internet now applies to coilDNA-enabled smart aluminium and thus IoM - Internet of Metals is taking shape.

Human DNA is an excellent role model for coilDNA. Every single cell of a human body can be used to identify the individual. DNA sequencing allows to reconstruct the entire DNA information obtained from only a single DNA molecule. The coilDNA technology uses comparable algorithms. A unique coilDNA information code gets continuously printed on the surface of a parent product e.g. a coil, a tube or a profile by laser or inkjet. This code uniquely identifies the position within the parent product and subsequently allows the assignment of the production data recorded at this position.

Regardless of how this parent product is cut in subsequent production steps, the item-related and even the position-related information is always kept available.

With only 14 human readable characters of the coilDNA code, all the information about the respective piece of metal can be retrieved.

coilDNA thus offers a key and platform to producers and processors of metals to exchange product-related data in extra fine granularity. New ways for the optimization of production processes, supply chains, and communication via useful Apps are opened. In detail:

- Efficient processing of metal parts by considering the local properties of the semi-finished product used
- Seamless tracking of products and their properties throughout the whole supply chain from producer to processor
- Data-driven communication with the producers using a simple picture of a product labeled with a coilDNA code taken for example by a cell phone. The coilDNA CHAT App allows to identify the product and to give direct feedback to the producer.
- Check of validity of product-related paper documents using the coilDNA CHECK App
- The coilDNA technology, therefore, makes products and the associated information forgery-proof

coilDNA supplies the unique product code, data services, and application support. Industrial partners in the field of

- manufacturing execution systems for the integration of the coilDNA technology into MES systems,
- industrial printing and high-speed inline character recognition as well as
- blockchain technologies

are available to complete the technological package.

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