

Session	Advanced Coating Technologies (II)
Date	APRIL 11, 2025
Time (CET)	13:45 - 14:15
Chair	Hasan İsmail



INVITED SPEAKER

Novel Processing Technologies and Substrates for Large Area Coating

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Biography

Jörg Neidhardt is heading the Department of Sheet-to-Sheet and Precision Coating at the Fraunhofer Institute for Electron Beam and Plasma Technologies in Dresden, Germany. His main focus is on application inspired research and development turning lab-scale ideas into pilot-scale surface engineering solutions. He dwells on more than 25 years experience both in academia as well as industry holding positions in the hard coating, semi-conductor, photovoltaic and equipment/component manufacturing industry. Before his current role at Fraunhofer he was the Head of Innovation and Technology Application with VON ARDENNE.

He holds a PhD in "Thin Film Physics" from the University Linköping, Sweden and has been educated at the West Saxonian University (Germany), Sheffield Hallam University (UK) as well as the University of Leoben (Austria).

Abstract

The ever-growing demands on innovative technologies as well as increasing environmental concerns drive the development of surface engineering solutions. These technologies play an increasing role especially within the glass coating industry, where improved performance, new functionalities as well as higher productivity / reduced costs of glass products are of vital importance.

Fraunhofer FEP is hereby a technology service provider turning lab-scale ideas (TRL 3) into pilot-scale surface engineering solutions (TRL 7). These collaborative approaches with partners and clients encompass technology development, coating stack design, feasibility and scaling studies as well as hardware and components design. During this talk 3 innovative approaches alongside with the respective use cases will be presented:

Technologies and pilot equipment for coating and surface engineering of ultra-thin flexible glass

- Innovative substrate down to 30 µm thickness
- R2R (300mm width) and S2S (600x1200mm²) inline processing capabilities
- incl. inline cleaning, handling, inspection and full-face vertical coating
- mechanical characterization of the surface and edge strength
- Application examples: transparent contact layers and thermochromic materials for smart glazing



Energy-efficient inline flash lamp annealing of large areas

- Surface selective annealing method
- Inline processing of up to 600mm width
- In vacuum or controllable atmosphere
- Application examples: cost effective highly transparent conductive oxides and lowE coatings, recrystallization of self-cleaning TiO_x, dewetting of color selective plasmonic structures, chemical surface activation for antipathogenic and anti-fingerprint functionality

Optical coating stacks on large precurved 2.5D substrates

- Inline coating of substrates with a thickness or curvature of up to 120mm and 150kg
- Inline sputter deposition of high/low layer stacks with optical precision
- Compensation of curvature by adapted machine and component design
- Special emphasis on particle control during in-line processing
- Application examples: holographic full-face head-up-displays in car windscreens, large laser-optical components

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