The perspectives of industry oriented university research: 3D concrete printing by selective deposition

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Increase the competitiveness of construction industry ...

Productivity per labour hour

- All branches of economy
- Construction

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... and implement KETs for new materials

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How can we go from lab to future built environment?

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How can we go from lab to future built environment?

- Start from today’s architectural and structural design (sharp corners, straight geometries, massive cross-sections) and move to non-conventional ones
- Maximum use of common construction machinery
- Start from concrete compositions and properties in the framework of existing concrete codes to move towards UHDCs (see 3D printing as a KET for advanced materials and structure concepts)
- Printhead which enables usual surface qualities and precision tolerances according to existing standards
How can we go from lab to future built environment?

Rheological properties

Pumpability

Extrudability

Buildability

Process innovation as a driver to product and concept innovation

Hardened-state properties
→ Mechanics
→ Durability

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Capillary water suction of 3D printed fine-grained concrete visualised and quantified by neutron radiography (PSI)

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AMANAC WORKSHOP

WHAT KIND OF BUILT ENVIRONMENT FOR FUTURE GENERATIONS?

Thank you for your attention

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