Self-Healing UHPC

High-efficiency, high-quality self-healing admixtures for cement and concrete

Key Benefits

- 35–45 % increase of service life
- 25–35 % reduction of maintenance costs
- Best option for durability demanding concrete infrastructure
- Suitable for concrete renovation interventions
- Easy to use, storage and incorporation in all concrete mixes
- Recyclable, environment-friendly, no harm / no risk

The self-healing admixtures are based on proprietary technology (IP-protected), developed by the Institute of Nanoscience and Nanotechnology, at the NCSR "Demokritos" research center and are exploited by their Spinoff Company, INNOVMATER.

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Building-Integrated Photovoltaics (BIPVs)

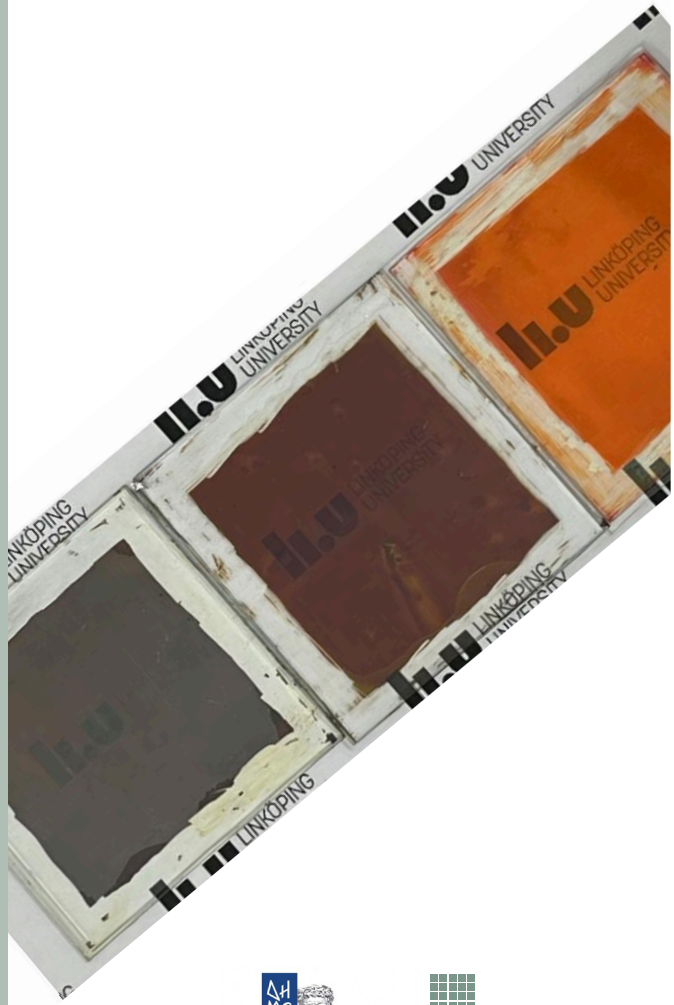
Harvesting energy directly from building surfaces

BIPVs are flexible, recyclable solar materials designed to turn windows, tiles, and facades into power generators combining high efficiency with low environmental impact.

Key Benefits

- Renewable electricity generation
- Integration into any building surface
- Reduction of carbon footprint
- Long service life and transparency control

Perovskite solar cells have demonstrated over 25 % power conversion efficiency for opaque devices, while semi-transparent counterparts can achieve up to 50 % optical transparency.



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Radiative Cooling Coatings

Passive cooling for sustainable and heritage buildings

Fluorine-free coatings reflect sunlight and radiate heat naturally, lowering building temperatures and energy use without electricity.

Key Benefits

- > 96 % emissivity
- > 93 % reflectivity
- Strong mid-infrared heat emission
- UV resistance and self-cleaning
- Extended material durability

Formulated from polyurethane and polysiloxane polymers enhanced with nanoparticles, these coatings combine cooling performance with durability for longer-lasting protection.

UCL sincere

Smartphone Augmented Reality & Web Platform

Data intelligence for heritage building management

A powerful web and mobile AR solution for the inspection, maintenance, and renovation of historical buildings. The system integrates BIM data, IoT sensors, and 3D visualization to support informed, data-driven decisions both on-site and remotely.

Key Benefits

- Enables proactive, reactive, and preventive MEP maintenance
- Connects AR field operations with web-based remote task management
- BIM visualization and real-time sensor data integration
- Accurate inspection and renovation planning
- Interoperable, scalable, and easy to use

Developed by up2metric within SINCERE, this innovation bridges the physical and digital worlds for smarter buildings management.