

In this issue

WMCCAU recap

31 August–4 September 2026 · Ostrava, Czech Republic

Short summaries from CRIPi-related presentations covering resilient pavements, climate exposure, non-destructive assessment and bio-modified binders.

Upcoming CRIPi activities in Palermo

28 September–2 October 2026 · Palermo, Italy

CRIPi Training School, RoadLCA2026 side activities, roadmap development, MC meeting, and YRI/RPA session.

Across CRIPi Working Groups

Brief highlights from WG1–WG6 and activities currently in progress.



CRIPi participants at WMCCAU 2026

WMCCAU at a glance



CRIPi organised **two special sessions** at WMCCAU: “Climate Resilient Infrastructure I” and “Climate Resilient Infrastructure II”, chaired by Dr Seyed Reza Omranian and Dr Katarzyna Konieczna, respectively.

Eight CRIPi-related contributions covered climate resilience, flooding, resilient pavements, sustainable materials and smart pavement infrastructure.

Highlights from CRIPI participants

Katarzyna Konieczna

Assistant Professor at Warsaw University of Technology, Poland, researching cold recycling, bio-modified bitumen, self-healing pavements and DIC-based analysis.

CRIPI: A European Collaborative Framework for Climate-Resilient Pavement Infrastructure

The presentation introduced CRIPI's mission, objectives and organisational structure, including its Working Groups, Young Researchers and Innovators (YRI), and Resilient Pavement Association (RPA). It highlighted opportunities for collaboration, networking, training and knowledge exchange, and encouraged researchers, practitioners and other stakeholders to contribute to the development of more climate-resilient pavement infrastructure.

Gustavo Câmara

Assistant Researcher at LNEC, Portugal, specialising in non-destructive pavement testing, self-healing technologies, bio-modified bitumen and pavement modelling.

Structural Impact of Extreme Weather Events on Flexible Pavements: A GPR and LWD Case Study in Portugal

The study examined structural pavement degradation following severe climatic events, particularly flooding, using Ground Penetrating Radar and Light Weight Deflectometer testing. The Portuguese case study demonstrated the value of non-destructive techniques for rapid post-event assessment and highlighted how efficient diagnosis can support the design, maintenance and management of more climate-resilient pavement infrastructure.

Lu Zhou

Lecturer in Civil Engineering at the University of Hertfordshire, UK, researching asphalt durability, low-carbon road materials and climate-resilient transport infrastructure.

Spirulina-Derived Pyrolytic Bio-Oil for Climate-Resilient and Low-Carbon Asphalt Pavement

The presentation explored spirulina-derived pyrolytic bio-oil as a potential bio-based material for lower-carbon asphalt pavements. It considered the role of microalgae-derived products in sustainable binder modification and discussed their relevance to reducing reliance on conventional petroleum-based materials while supporting the development of pavement materials better suited to future environmental and climate-related demands.

Ahmet Münir Özdemir

Assistant Professor at Bursa Technical University, Turkey, specialising in asphalt materials, binder modification, rheology and sustainable pavement technologies.

Investigation of the Flow Behavior of Asphalt Binder Containing Encapsulated Phase Change Material Using the Cross Model

The study investigated the rheological and thermal effects of microencapsulated phase change materials (PCM) in asphalt binder. PCM addition increased complex and zero-shear viscosity, particularly at 40°C, while reducing the critical shear rate and modifying shear-dependent flow behaviour. PCM also improved thermal regulation, with the 8% PCM binder producing the greatest reduction in peak temperature.

Soha Ahmadi

PhD researcher at the University of Antwerp, Belgium, working on geospatial assessment of road-network resilience to climate-related hazards.

A GIS-Based Framework for Assessing Road Network Exposure to Pluvial Flooding

The study presented a GIS-based framework for identifying and classifying road segments exposed to pluvial flooding by combining flood water-depth data with road-network characteristics and hierarchy. Rather than considering exposure alone, the framework distinguishes the relative importance of affected roads and provides a basis for subsequent network-level criticality, impact and resilience assessment.

Stavros Kalampokis

Postdoctoral researcher at Aristotle University of Thessaloniki, Greece, focusing on sustainable pavement materials and innovative bio-based materials for road infrastructure.

A Predictive Modeling Framework Linking BET Textural Properties to Storage Stability of Bio-Modified Binders

The study investigated whether the textural properties of solid bio-modifiers can help predict the storage stability of bio-modified bituminous binders. Regression analysis showed that both BET surface area and total pore volume significantly influenced phase separation, with BET surface area providing a slightly stronger predictor. The findings support more informed selection and design of stable bio-modified binders.

Pelin Sertyeşilışık

Teaching Assistant at Afyon Kocatepe University, Turkey, whose research focuses on climate change, sustainability and the built environment.

Assessing the Impact of Polypropylene Fibers on the Carbon Sequestration of Concrete

The study examined how 50 mm polypropylene fibres influence concrete carbonation under accelerated CO₂ exposure. Higher fibre contents increased CO₂ uptake and promoted deeper carbonation, although the response was not linear at intermediate dosages. Carbonation also increased matrix density and load-carrying capacity, indicating that polypropylene fibres may contribute to both carbon-sequestration potential and mechanical performance.

Leila Muchanga-Hvelplund

Based at ASI.Gov ApS in Copenhagen, Denmark, with work related to resilient, intelligent and autonomous transport infrastructure.

An Integrated Automation System for Resilience Validation of Cognitive Autonomous Pavement Infrastructure

The poster introduced an integrated automation framework for systematically validating the resilience of cognitive autonomous pavement infrastructure. The proposed approach aims to support structured assessment of system resilience and provides a foundation for improving the reliability and safety of future smart and increasingly autonomous transport infrastructure.

CRIPI activities in Palermo: key dates

28–29 Sep

Workshop 1: Climate Resilient Transport Infrastructure

Venue: Orto botanico, Sala Lanza. Focus on climate resilience, resilient roads and alternative paving materials.

30 Sep–2 Oct

Workshop 2: Sustainable Transport Infrastructure

Venue: University main campus, Building 7. Includes sustainability, decarbonisation, LCA, digitalisation and industry sessions.

2 Oct

CRIPI Roadmap Development & Meetings

Roadmap development, Management Committee meeting, and joint YRI–RPA session.

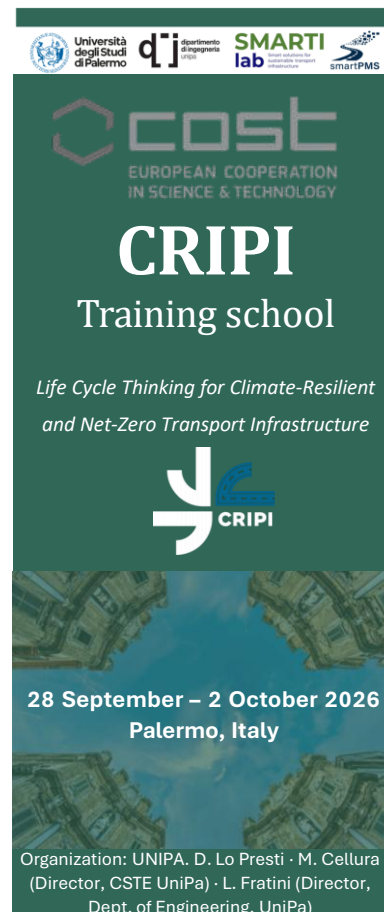
RoadLCA2026 opportunity

CRIPI trainees can attend with a special €350 registration fee. The conference fee is not reimbursable through CRIPI.

Useful links

[ROADLCA2026 ↗](#)

[CRIPI Training School ↗](#)



Across CRIPI Working Groups

WG1 Climate Factors, Pavement Resilience, and Risk Assessment

WG1 is developing a common framework for climate-resilient pavements, with planned scientific missions, seminars and training activities supporting climate-risk assessment and decision-making.

WG3 Pavement

WG3 has outlined field-oriented STSM themes across different climate zones, covering freeze–thaw effects, high-temperature pavement performance and flooding/drainage.

WG5 Sustainability assessment

WG5 is developing a consequential LCA framework for climate-resilient pavements and is supporting the Palermo training on LCA and climate change together with WG1.

WG2 Materials

WG2 is coordinating work on advanced pavement materials, material resilience and characterisation under climatic impacts, alongside future STSM and training activities.

WG4 Monitoring & resilience index

WG4 is focusing on pavement monitoring, sensors, road inspection and resilience indicators, including the identification of climate-related monitoring pilot projects.

WG6 Coordination and Communication

WG6 supports CRIPI communication through the website, LinkedIn, RPA/YRI activities and newsletters. Action snapshot: **2** hybrid coordination meetings in 2026; **3** RPA seminars; **3** YRI activities.

STSM in progress

STSM activities for the current grant period are now underway.
5 reports submitted · 2 in progressing
Further updates and short participant highlights will be featured in future issues.

Stay connected & contribute

Have news, photos, events or opportunities to share? We welcome contributions from across the CRIPI network for future Newsletter issues.
Send news to: [Lu Zhou \(L.zhou7@herts.ac.uk\)](mailto:L.zhou7@herts.ac.uk)
Next issue: Palermo highlights · upcoming events