



University of Architecture, Civil Engineering and Geodesy

National Earthquake Engineering Center

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UNIVERSITY
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EEF₂₆



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Earthquake Engineering Forum (EEF.26)

Актуални проблеми на сеизмичното инженерство

Contemporary Issues in Earthquake Engineering

Dates: May 17-22, 2026
Venue: UACEG, Sofia, BG
Languages: English, Bulgarian

Day 1 - May 18, 2026 - Monday		
Panel 2 – Research and Practical Seminar		
“Earthquake engineering today – current challenges and open issues“		
Participants: International participants of EEF.26		
D&T: May 18, 2026 – 14.15 – 17.30	Venue: UACEG, NEEC – REC B067	Language: English
Chair: Prof.i.R. Dr. Eng. Dimitar Kisliakov		
14.15 - 15.00	The Kahramanmaraş Earthquake Sequence: Key Findings, Performance of Precast Industrial Buildings and Lessons for the Greek Practice	
	<i>Pavlos Thanopoulos DIC, MSC, PHD Assistant Professor National Technical University of Athens, Greece</i>	
	Short abstract: The activities and key findings of the Greek field mission following the 2023 earthquake sequence in Kahramanmaraş (Turkey) are presented, with emphasis on both structural and geotechnical aspects. Special attention is given to the observed failures of reinforced concrete (RC) industrial buildings. These buildings, typically consisting of prefabricated RC columns and rafters, exhibited extensive damage, ranging from local failures of main structural elements to the total collapse of the floors and roofs. Numerical analyses combined with field observations highlight the devastating consequences of poor workmanship, inadequate manufacturing methods and insufficient quality control, as well as the extreme intensity of the 2023 earthquake sequence. Strengthening strategies of existing buildings are proposed utilising simple steel systems that are readily available in developing countries. Conclusions are drawn with direct relevance to practice in Greece, aiming to build on positive observations and avoid identified deficiencies. To that end, a brief overview of current and state-of-the-art practices in seismic design in Greece is also presented.	
	Short CV: Pavlos Thanopoulos is an Assistant Professor at the National Technical University of Athens (NTUA), where he has been a faculty member since 2014. His specialization is the design of steel structures under seismic loading. Combining academic research with extensive engineering practice, he previously spent eight years at DOMI SA, one of Greece’s leading consulting firms, contributing to the design and realization of major bridge projects. He holds a Civil Engineering degree from NTUA, an MSc with distinction in Structural Steel Design from Imperial College London, and a PhD in Innovative Seismic-Resistant Steel Systems. His research focuses on advancing the seismic performance and stability of steel structures. Alongside his academic role, he remains actively engaged in engineering practice as a specialist consultant in steel buildings and steel/concrete composite bridges. His professional experience spans a wide range of structural engineering activities, including inspection, design, supervision, consulting, and implementation of complex steel and steel/concrete composite structures. He is the co-author of two technical books in Greek and has published numerous papers in international journals and conference proceedings.	
15.00 – 15.45	Challenges in Damage Prognosis for RC Structures concerning the level of ERD	
	<i>Jun.-Prof. Dr.-Ing. Lars Abrahamczyk Professur Komplexe Tragwerke Institut für Konstruktiven Ingenieurbau Bauhaus-Universität Weimar</i>	

	<i>Germany</i>
	Short abstract: The prediction of damage in buildings under severe shaking has been the subject of numerous studies over the years. Buildings designed and built to resist earthquakes can exhibit varying dynamic characteristics, depending on the regional code development and the ductility, strength, and stiffness requirements. Due to the lack of damage observations for buildings with earthquake-resistant design (ERD), analyses based on reliable structural models and experimental tests are used to evaluate their responses and assess their performance under varying shaking intensities. Reinforced Concrete (RC) buildings with ERD are generally - but not always - designed for ductility and have high plastic deformation capacity and cumulative energy dissipation capacity. This presentation focuses on the Challenges in Damage Prognosis for RC Structures concerning the level of ERD. In particular on the evaluation of the quality and suitability of fragility functions derived for RC frame structures designed with different levels of ERD. It underscores the need for elements and structural models representing the intended level of ERD, while taking into account the detailing of reinforcement according to the corresponding ductility classes.
	Short CV: Lars Abrahamczyk has served as a Junior Professor of Advanced Structures at Bauhaus-Universität Weimar since 2020. Following his studies in civil and structural engineering, his doctoral research focused on the prognosis and assessment of reinforced concrete frame structures under seismic loading; from 2014 to 2019, he also served as the CEO of the Research Training Group 1462—"Assessment of Coupled Numerical and Experimental Partial Models in Structural Engineering." A key focus of Prof. Abrahamczyk's research lies in the assessment (including the validation of structural models) of individual structures and building stocks under seismic (or other exceptional) loads. His work places particular emphasis on reinforced concrete frame structures with masonry infills, as well as masonry buildings—specifically incorporating data derived from temporary and permanent instrumentation of buildings and structures.
15.45 – 16.15	Coffee break
16.15 – 17.00	Steel Cantilever Structures: Observations, Analysis, and Design Implications from the 2023 Kahramanmaraş Earthquake <i>Assoc. Prof. Dr. Eng. Tzvetan Georgiev,</i> <i>department "Steel, Timber and Plastic Structures"</i> <i>Faculty of Structural Engineering, UACEG</i>
	Short abstract: The lecture presents observations and analytical findings related to the seismic performance of single-storey steel cantilever structures during the Kahramanmaraş earthquake sequence of 6 February 2023. Field reconnaissance in Antakya revealed cases of such structures surviving extreme ground motion without structural damage, despite seismic demand exceeding the design levels prescribed by current codes. To explain this observed behaviour, a detailed investigation of a representative building is carried out, combining recorded strong-motion accelerograms with linear and nonlinear dynamic analyses. The results demonstrate that the structural response is governed by controlled plastic hinging at the column bases, which enables stable energy dissipation despite the limited redundancy of the system. Nonlinear analysis indicates a substantial reduction of effective seismic demand compared to the elastic response, on the order of 2.5–2.8 times, while second-order (P-Δ) effects are shown to play a significant role in the development of displacements and residual deformations. The lecture also examines the current treatment of cantilever steel systems in seismic design standards, with a comparative discussion of Eurocode 8 and AISC provisions. Particular attention is given to the detailing of joints between steel columns and primary roof elements, highlighting critical aspects that may influence the global seismic response. Based on the combined field observations and analytical results, a set of practical design recommendations is proposed, including suitable values for behaviour factors and directions for improving the seismic performance of such systems.
	Short CV: Assoc. Prof. Tzvetan Georgiev is an Associate Professor at the University of Architecture, Civil Engineering and Geodesy (UACEG), Sofia, and a practicing structural engineer with over 30 years of professional experience in the design and analysis of steel structures. He teaches courses in Steel Structures and Design of Steel Structures for Seismic Actions. He is a member of the National Earthquake Engineering Center (NEEC) at UACEG and serves as Deputy Head of the Centre. He is also actively involved in the development and implementation of Eurocode 8 in Bulgaria as Chair of Working Group 8 to Technical Committee 56. His research interests include innovative approaches for seismic design, concentrically braced frames (CBFs), ultra-low-cycle fatigue, and bolted connections. He has participated in numerous national and international research projects and has extensive field experience from post-earthquake reconnaissance missions following major earthquakes, including Kocaeli (1999), Durrës (2019), and Kahramanmaraş (2023). He has authored and co-authored numerous scientific publications and technical books in Bulgarian and English.
17.00 – 17.30	Discussion