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ASHRAE Hellenic Chapter ΤΕΕ

#	**Alkis Paipetis** Professor	
Title:	Professor	
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Presentation title:	Advanced Cementitious Materials for Energy Harvesting	

Thermoelectricity has been studied for more than two centuries and offers a sustainable way to recover and convert waste heat into easily available electric energy. New classes of thermoelectric materials are developing, providing new opportunities for improving the efficiency of thermoelectric conversion. Due to the increasing demand for sustainable energy conversion technologies, it is crucial to develop thermoelectrics based on available, non-toxic materials that can be manufactured at economically viable sizes and are suited for a variety of temperature ranges.

The manufacturing of smart, multi-functional, thermoelectric cement-based composite materials with optimized performance is examined in this presentaion. More specifically, the optimization of the thermoelectric cementitious materials was accomplished via the modification of the cement matrix with carbon fillers either at the nanoscale or at the microscale. Cement-based thermoelectric energy generators could enable the powering of low-consumption electronic devices towards autonomous sustainable structures.

CV:

Alkiviadis S. Paipetis is a Professor at the Department of Materials Science and Engineering of University of Ioannina (Greece). He is a mechanical engineer with research activity in the field of mechanical behavior and Non-Destructive Evaluation of composite materials and structures. His research in the area of advanced composite materials is focusing on novel techniques of structural health monitoring, smart and multifunctional materials and structures, damage mechanics, experimental micromechanics as well as advanced monitoring and testing techniques. A.S. P. was awarded the ESCM Award for his paper in ECCM11, by the European Society for Composite Materials, June 2008, a Scholarship of the “Karatheodoris Foundation», University of Patras, 2002-2003, and the Distinction in Materials Research by the University of London, 1992. A. S. P. is the author or co-author of more than 130 international publications in peer reviewed journals and conference proceedings. He has also published monographs in the area of composites on interfaces, impact, hybrid and nanoreinforced composites and has served as an editor in numerous scientific publications. He is the holder of 6 international patents and has given more than 15 invited talks in international conferences and >100 oral or poster presentations at international and national conferences. He has participated as Principal Investigator, main researcher or Program coordinator in >15 funded European and National (Greek) programs, has served as an evaluator in Aeronautics & Air Transport, EC Evaluator (EU), FWO, Research Foundation Flanders, Belgium, Karatheodoris Foundation, Proposal Evaluator (University of Patras), Leonardo Da Vinci, Evaluator (University of Ioannina). He is a founding member of the Hellenic Society for Composite Materials, a House Editor for Advanced Composites Letters, a member of the editorial board of the Journal of Advanced Mechanical Engineering, CIP, Journal of Composites, Hindawi, The Scientific World Journal, Hindawi and a reviewer in more than 30 international journals in the field of mechanics and composites. A.S. P founded the Mechanics of Smart and Composite Materials Laboratory in the University of Ioannina. He was the Conference Chairman, Emerging technologies in NDT, Ioannina 2011 and member of the scientific committee in more than 10 international conference series.