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ENERGY in BUILDINGS – Northern Hellas 2019

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#	Nikos Kehagias, Ph.D.	
Title:	Catalan Institute of Nanoscience & Nanotechnology (ICN2), CSIC and BIST, Campus UAB, 08193 Barcelona, Spain	
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Presentation title:	Functionality by Controlling Surface Topography at the Nano Scale, Applied in Building Environment	
<p>Creating functional surfaces by controlling the surface topography at the nano and/or micro scale is increasingly attracting the attention of the manufacturing industry. Physical micro/nano structuring has demonstrated added value surfaces which find application in a wide variety of sectors in modern society: security, photonics/optics, electronics, biomedical with a central focus to the build environment. Advances in nanoscience and nanotechnology requires alternative nano-manufacturing technologies and materials which enable some kind of hybrid functionality to be applied on buildings.</p> <p>In this talk we discuss how to utilize advanced high volume nanomanufacturing processes to mass replicate nano metric scale structures over large areas. We debate the use of imprint based methods in order to upscale nanostructured surfaces over rigid or flexible substrates and demonstrate the utilization of such in real time applications. In particular, we will present examples of self- cleaning surfaces, on surfaces which bacterial refuse to attached and smart films which effectively cool down surfaces by controlling thermal transport.</p>		
CV:	<p>Since 2010 Dr Kehagias is leading the flexible nanofabrication platform of the Catalan institute of nanoscience and nanotechnology (ICN2). He obtained his PhD in 2007 from the National University of Ireland, Cork where he continued to work as a post-doctoral fellow until May 2008. In May 2008, he joined the Phononic and Photonic Nanostructures group in the Catalan Institute of Nanotechnology (ICN-CIN2). His research work focuses on the study and developed of novel nano-manufacturing (roll to roll nanoimprint lithography and nano-injection moulding) methods based on imprint lithography techniques. In the last years his research efforts have been focused on developing nano-enabled plastic components and devices based on bio-mimicking properties. Dr. Kehagias had been working in the past on polymer optical and photonic devices with an emphasis on photonic crystal applications for light extraction purposes.</p>	