



ΑΡΙΣΤΟΤΕΛΕΙΟ  
ΠΑΝΕΠΙΣΤΗΜΙΟ  
ΘΕΣΣΑΛΟΝΙΚΗΣ

# ΣΕΜΙΝΑΡΙΟ ΤΜΗΜΑ ΦΥΣΙΚΗΣ

Τετάρτη 10 Δεκεμβρίου 2014

ώρα 12<sup>30</sup>

Αίθουσα Α<sub>31</sub>

## Κύκλος σεμιναρίων



... ένα ταξίδι  
σύγχρονης

στον κόσμο της  
Φυσικής

στο Τμήμα Φυσικής

## Laser processing of thin films for flexible electronics



**Dr. Demosthenes Koutsogeorgis**  
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Lasers have been used in research for processing materials for many years. As of late more and more lasers are introduced in production lines where electronic and optical devices are fabricated. It is expected that the future of micro and nano-device fabrication will involve further the use of lasers. In this seminar the basics of UV laser processing of thin film materials will be presented, with emphasis to the potential of the technique for realising flexible electronics. Whether it is laser ablation for the creation of tracks, laser annealing for the activation of a dopant by localised heat treatment, laser sintering for the effective removal of a solvent, or laser melting for the formation of nanoparticles, there are 10 parameters that govern the process and that must be tuned on a case by case optimization. Case studies of different classes of materials will be presented, namely phosphor thin films for light emitting applications, transparent conducting oxides for use as electrodes in optoelectronic devices and metal thin films turned into nanoparticles for plasmonic applications.

*Το προφίλ του ομιλητή*



Dr Koutsogeorgis graduated from the University of Ioannina, Greece, in 1997, with a BSc in Physics. He then moved to Nottingham Trent University as PhD candidate (Research Assistant) in the Electrical and Electronic Engineering Department and was awarded a PhD in 2003 ("Investigation of laser annealing of phosphor thin films for potential luminescent devices", Nottingham Trent University, 2003). He joined NTU in 2000 as a member of the research staff (Research Associate) funded by industry, and in 2002 he became a Lecturer. He had a short career break from August 2003 to September 2004 and upon return, he resumed teaching and research activity. In 2005 he became a Senior Lecturer and in 2013 he was promoted to Reader in Photonic Technologies, a post which he still holds.

Dr Koutsogeorgis' research interest is in the area of Material Science. Specific areas of interest include thin film technology, laser processing, luminescent devices, plasmonics, electronic devices, smart coatings.