

Curriculum Vitae

Dr. Nikos Kehagias

Contact

Nanoimprint Lithography Platform,
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Personal information

Marital status: Single
Nationality: Greek
Date of birth: 17 May 1977

Education

2004-2007 PhD in Physics, by research and thesis (awarded), National University of Ireland, University College Cork, Ireland, Thesis title: "Study of nanoimprint techniques for the fabrication of 2D and 3D photonic devices"
2002-2003 MSc in Physic of Laser Communications, Essex University, Colchester, Essex, United Kingdom,
1996-2002 BSc in Physics, Aristotle University Thessaloniki, Greece

Experience and employment

2015-present: Nanoimprint Lithography Platform Manager in the Catalan Institute of Nanoscience and Nanotechnology (ICN²)
2012: Co-founded SME start up buiness "Nanotypos" in Thessaloniki, Greece
2010- 2015: Head of Nanofabrication division in the Catalan Institute of Nanoscience and Nanotechnology (ICN²)
2008-2010 Post-doctoral Research, Catalan Institute of Nanotechnology
2007-2008 Post-doctoral Research, Tyndall National Institute
2004-2007 PhD Research

Research experience

Nanofabrication:

- Overall laboratory management
- Clean room and ISO regulations training
- Safety processes
- Thermal and UV light assisted Nanoimprint lithography
- Roll-to-Roll nanoimprint lithography
- Micro/nano Injection Moulding
- Electron beam lithography
- Focused Ion beam lithography
- Block copolymer Self assembly
- Wet and dry etching
- Electron beam metal evaporation
- Nickel Electroplating
- Alternative 3D fabrication process (reverse UV-NIL lithography)

Metrology/characterization:

- Electron beam microscopy
- Atomic force microscopy
- Optical microscopy

Research Interests

Advanced Nanofabrication:

- Roll-to-roll nanoimprint lithography: Large area nano-patterning for functional nanostructured film production
- Nano-injection moulding: Nano-structured injection moulding moulds/insert for the production of functional plastic component and devices
- Novel 3D nano-patterning techniques: Fabrication of three-dimensional polymer devices for applications in biotechnology and optics. Using the “reverse UV nanoimprint lithography” technique, multilayer structures for, cell engineering, bio-sensing and micro-fluidic applications are in particular interest.
- Photonic/plasmonic/phononic devices: Fabrication of nano-metric scale devices by means of combinatory and emerging nanofabrication methods
- Flexible large area organic electronic devices: Development of fabrication methods for alternative electrode structures for organic electronic applications

- Self-assembly lithography: Block copolymer patterning using a combination of Graphoepitaxy method and nanoimprint lithography techniques
- Non-destructive nano-metrology tools and techniques for inline and online characterization of nanostructured surfaces and devices
- Development of novel tools and equipment for alternative nanolithography solutions.

Administrative/Financial Responsibilities

- Principle investigator and manager of several Industrial project with Henkel. This was 1+1 year funded project which led to a patent.
- Antimicrobial FLEXible POLymers for its use in hospital environments (FLEXPOL) (“Horizon 2020 -NMBP-PILOTS-2016”) under grant agreement n° 1290/2013. Project period Jan. 2017- Dec. 2019, **Budget: 734.500 €.**
- Diamond-based nanomaterials and nanostructures for advanced electronic and photonic applications (D-SPA) (H2020-MSCA-RISE-2016) under grant agreement n° 1290/2013. Project period Jan. 01. 2017- Dec. 31. 2020, **Budget: 216.000 €.**
- Injection moulding production technology for multi-functional nano-structured plastic components enabled by Nano Imprint Lithography (Plast4Future) (FP7/2007-2013) under grant agreement n° 314345. Project period: Jan.1.2012 - 31.12.2015, **Budget: 352,206 €**
- Large Area Molecularly Assembled Nanopatterns for Devices (LAMAND) (FP7-NMP-2009-SMALL-3) under grant agreement n° 245565, Project period July. 01. 2010- June. 30. 2013, **Budget: 546,37€.**
- Production and Applications based on Nanoimprinting Lithography (NAPANIL). EU FP7 ICT -2007-216176, Project period: May 1 2008 - February 2012, **Budget: 1,057,267 €**
- EU NMP4-CT-2003-500129, Integrated Project Emerging Nanopatterning Methods (NaPa), Project period: March 2004 – February 2008, **Budget: 1,174,239 €**
- Supramolecular structures on patterned substrates: towards molecular addressing, Project period: June 2005- May 2006, Royal Irish Academy, **Exchange grant. 14,000 €**
- University College Cork and Jilin University in Changchung, China, Supramolecular structures on patterned substrates: towards molecular addressing, Project period: June 2007- May 2008, Royal Irish Academy, **Exchange grant. 7,000 €**

- EU IST project Network of Excellence 511616, Network of Excellence Nanophotonics to realise molecular-based technologies (PHOREMOST), Project period: 1st October 2004 – 30th September 2008, Budget: 390.000 €

Publication list

In total I am the author and coauthor in 42 journal publications, have been an invited speaker in several summer schools and have given more than 10 lectures on nano-manufacturing technologies and applications. I have participated in more than 100 international conferences and workshops and contributed my work to 2 book chapters. I am co-author in two industrial patents.

Training/Supervision responsibilities

I have trained and supervised numerous international students and researchers over my carrier. I have reserved in the Phd defense committee of 3 students.

International Collaborators

Throughout my professional career, I have lived in 4 different countries (UK, Ireland, Germany, Spain), working in various applied research project mainly for multidisciplinary applications. Among others I had establish strategic collaboration with industrial, research and academic entities:

Centro Ricerche FIAT, Italy; CEA-LETI-LTM, France, Fraunhofer Institute (IPT), Germany; TECNALIA, Spain; HENKEL (Advanced Technology Lab), Spain; microresist technology GmbH, Germany; NILTechnology Aps, Denmark; EURECAT, Spain; LEGO, Denmark; INTEL, Ireland; IK4, Spain, CNR, Italy; MAIER Spain; Tyndall National Institute, Ireland; AMBER, Ireland; University of Patra, Greece; VTT Technical Research Center, Finland; Imperial Colleague, UK; CNR, Italy; Russian Academy of Science/MIT, Russia; DTU, Denmark; Democritus National Institute, Greece; Jilin University, China; Karlsruhe Institute of Technology (KIT), Germany; University Of Massachusetts, USA; FORTH, Greece; PTMTEC Oy, Finland; Vacsell Ltd, Ireland; IMRE Institute, Singapore; IBM, Switzerland.