

Maria Kandyla

LIST OF PUBLICATIONS

A. Ph.D. THESIS

“Ultrafast dynamics of the laser-induced solid-to-liquid phase transition in aluminum”, Ph.D. thesis, School of Engineering and Applied Sciences, Harvard University, 2006.

B. B.Sc. THESIS

“Application of the direct perturbation method on non-linear propagation in optical fibers”, Senior thesis, School of Electrical and Computer Engineering, National Technical University of Athens, 2000.

C. PEER REVIEWED JOURNAL PUBLICATIONS

1. A. Mellos, M. Kandyla, D. Palles, and M. Kompitsas, *Effects of hydrogen pressure on hydrogenated amorphous silicon thin films prepared by low-temperature reactive pulsed laser deposition*, [Physica Status Solidi C, **14**, 1600088 \(2017\)](#).
2. D.G. Kotsifaki, M. Kandyla, and P.G. Lagoudakis, *Plasmon enhanced optical tweezers with gold-coated black silicon*, [Scientific Reports **6**, 26275 \(2016\)](#).
3. I. Sta, M. Jlassi, M. Kandyla, M. Hajji, P. Koralli, F. Krout, M. Kompitsas, and H. Ezzaouia, *Surface functionalization of sol-gel grown NiO thin films with palladium nanoparticles for hydrogen sensing*, [International Journal of Hydrogen Energy **41**, 3291 \(2016\)](#).
4. D.G. Kotsifaki, M. Kandyla, and P.G. Lagoudakis, *Near-field enhanced optical tweezers utilizing femtosecond-laser nanostructured substrates*, [Applied Physics Letters **107**, 211111 \(2015\)](#).

5. T. Shin, S.W. Teitelbaum, J. Wolfson, M. Kandyla, and K.A. Nelson, *Extended two-temperature model for ultrafast thermal response of band gap materials upon impulsive optical excitation*, [The Journal of Chemical Physics **143**, 194705 \(2015\)](#).
6. T. Shin, J.W. Wolfson, S.W. Teitelbaum, M. Kandyla, and K.A. Nelson, *Carrier confinement and bond softening in photoexcited bismuth films*, [Physical Review B **92**, 184302 \(2015\)](#).
7. I. Sta, M. Jlassi, M. Kandyla, M. Hajji, P. Koralli, R. Allagui, M. Kompitsas, and H. Ezzaouia, *Hydrogen sensing by sol-gel grown NiO and NiO:Li thin films*, [Journal of Alloys and Compounds **626**, 87 \(2015\)](#).
8. D.G. Georgiadou, M. Ulmeanu, M. Kompitsas, P. Argitis, and M. Kandyla, *Scalable fabrication of nanostructured p-Si/n-ZnO heterojunctions by femtosecond-laser processing*, [Materials Research Express **1**, 045902 \(2014\)](#).
9. I. Sta, M. Jlassi, M. Hajji, M.F. Boujmil, R. Jerbi, M. Kandyla, M. Kompitsas, and H. Ezzaouia, *Structural and optical properties of TiO₂ thin films prepared by spin coating*, [Journal of Sol-Gel Science and Technology **72**, 421 \(2014\)](#).
10. T. Shin, J.W. Wolfson, S.W. Teitelbaum, M. Kandyla, and K.A. Nelson, *Dual echelon femtosecond single-shot spectroscopy*, [Review of Scientific Instruments **85**, 083115 \(2014\)](#).
11. M. Kandyla, C. Chatzimanolis-Moustakas, M. Guziewicz, and M. Kompitsas, *Nanocomposite NiO:Pd hydrogen sensors with sub-ppm detection limit and low operating temperature*, [Materials Letters **119**, 51 \(2014\)](#).
12. M. Kandyla, C. Chatzimanolis-Moustakas, E.P. Koumoulos, C. Charitidis, and M. Kompitsas, *Nanocomposite NiO:Au hydrogen sensors with high sensitivity and low operating temperature*, [Materials Research Bulletin **49**, 552 \(2014\)](#).

13. I. Fasaki, M. Kandyla, M.G. Tsoutsouva, and M. Kompitsas, *Optimized hydrogen sensing properties of nanocomposite NiO:Au thin films grown by dual Pulsed Laser Deposition*, [Sensors and Actuators B: Chemical](#) **176**, 103 (2013).
14. M. Kandyla, C. Pandis, S. Chatzandroulis, P. Pissis, and I. Zergioti, *Direct laser printing of thin-film polyaniline devices*, [Applied Physics A](#) **110**, 623 (2013).
15. D.G. Kotsifaki, M. Kandyla, I. Zergioti, M. Makropoulou, E. Chatzitheodoridis, and A.A. Serafetinides, *Optical tweezers with enhanced efficiency based on laser-structured substrates*, [Applied Physics Letters](#) **101**, 011102 (2012).
16. I. Fasaki, M. Kandyla, and M. Kompitsas, *Properties of pulsed laser deposited nanocomposite NiO:Au thin films for gas sensing applications*, [Applied Physics A](#) **107**, 899 (2012).
17. M. Kandyla, S. Chatzandroulis, and I. Zergioti, *Laser induced forward transfer of conducting polymers*, [Opto-electronics Review](#) **18**, 345 (2010). Also selected for presentation at the [MIT Technology Review](#) and Physics Today.
18. E. Drakaki, M. Kandyla, E. Chatzitheodoridis, I. Zergioti, A.A. Serafetinides, A. Terlixli, E. Kouloumpi, A. Moutsatsou, M. Doulgerides, V. Kantarelou, A. Karydas, and C. Vlachou-Mogire, *Laser studies of metallic artworks*, [Applied Physics A](#) **101**, 349 (2010).
19. C.R. Mendonca, M. Kandyla, T. Shih, R.F. Aroca, C.J.L. Constantino, and E. Mazur, *Ultrafast dynamics of bis (n-butylimido) perylene thin films excited by two-photon absorption*, [Applied Physics A](#) **96**, 369 (2009).
20. M. Shen, J.E. Carey, C.H. Crouch, M. Kandyla, H.A. Stone, and E. Mazur, *High-density regular arrays of nanometer-scale rods formed on silicon surfaces via femtosecond laser irradiation in water*, [Nano Letters](#) **8**, 2087 (2008).
21. M. Kandyla, T. Shih, and E. Mazur, *Turning aluminum liquid in picoseconds*, [Optics and Photonics News](#) **18**, 44 (2007).

22. M. Kandyla, T. Shih, and E. Mazur, *Femtosecond dynamics of the laser-induced solid-to-liquid phase transition in aluminum*, [Physical Review B **75**, 214107 \(2007\)](#).
23. S.I. Kudryashov, M. Kandyla, C.A.D. Roeser, and E. Mazur, *Intraband and interband optical deformation potentials in femtosecond-laser excited α -Te*, [Physical Review B **75**, 085207 \(2007\)](#).
24. C.A.D. Roeser, M. Kandyla, A. Mendioroz, and E. Mazur, *Optical control of coherent lattice vibrations in tellurium*, [Physical Review B **70**, 212302 \(2004\)](#).

D. CONFERENCE PROCEEDINGS

1. M. Guziewicz, P. Klata, J. Grochowski, K. Golaszewska, E. Kaminska, J.Z. Domagala, B.A. Witkowski, M. Kandyla, Ch. Chatzimanolis, M. Kompitsas, and A. Piotrowska, *Hydrogen sensing properties of thin NiO films deposited by RF sputtering*, [Procedia Engineering **47**, pp. 746-749 \(2012\)](#).
2. A.A. Serafetinides, E. Drakaki, E. Fabrikesi, M. Kandyla, I. Zergioti, C. Vlachou-Mogire, R.R. Thomson, A.K. Kar, N. Boukos, and A.G. Karydas, *Comparative evaluation of ultrafast laser beam interactions with the silvering in late Roman coins*, [Proceedings of SPIE **7391**, Article No. 73910P \(2009\)](#).
3. C.R. Mendonca, M. Kandyla, T. Shih, R.F. Aroca, C.J.L. Constantino, and E. Mazur, *Ultrafast reflectivity dynamics in bis (n-butylimido) perylene thin films*, 2008 Conference on Lasers and Electro-Optics & Quantum Electronics and Laser Science Conference 1-9, pp. 2459-2460 (2008).
4. M. Kandyla, T. Shih, and E. Mazur, *Femtosecond dynamics of the laser-induced solid-to-liquid phase transition in aluminum*, 2007 Conference on Lasers and Electro-Optics & Quantum Electronics and Laser Science Conference 1-5, pp. 2488-2489 (2007).

5. S. Kudryashov, M. Kandyla, C.A.D. Roeser, and E. Mazur, *Transient picometer atomic displacements in a-Te photoexcited by femtosecond laser pulses*, [Proceedings of SPIE 6727, p. 72709, \(2007\)](#).

E. CONFERENCE PRESENTATIONS

1. M. Alexiadou, M. Kandyla, G. Mousdis, and M. Kompitsas, *Pulsed laser deposition of ZnO thin films decorated with Au and Pd nanoparticles with enhanced acetone sensing performance*, 6th International Symposium on Transparent Conductive Materials, Chania, Greece (October 2016).
2. M. Kandyla, N. Kelaidis, D. Palles, S.A. Giamini, M. Kanidi, J. Marquez, A. Dimoulas, and E.I. Kamitsos, *Properties of graphene supported on gold-coated black silicon*, 32nd Panhellenic Conference on Solid-State Physics and Materials Science, Ioannina, Greece (September 2016).
3. [Invited] M. Kandyla, *Laser processing of micro/nanodevices*, 1st Panhellenic Conference on Photonics, Athens, Greece (May 2016).
4. N. Latsis, M. Ulmeanu, D. Palles, and M. Kandyla, *Femtosecond-laser nanostructured silicon substrates for UV photodiodes based on p-Si/n-ZnO heterojunctions*, 6th International Conference on Micro-Nanoelectronics, Nanotechnologies and MEMS, Athens, Greece (October 2015).
5. D.G. Kotsifaki, D. Georgiadou, M. Ulmeanu, P.G. Lagoudakis, and M. Kandyla, *Silicon nanostructures for photonic and optoelectronic applications*, European Materials Research Society (E-MRS) 2015 Spring Meeting, Lille, France (May 2015).
6. [Invited] D.G. Kotsifaki, M. Kandyla, and P.G. Lagoudakis, *Tunable femtosecond-pulsed plasmonic nanotweezers based on laser-fabricated substrates*, 11th International Conference of Computational Methods in Sciences and Engineering (ICCMSE), Athens, Greece (March 2015).

7. I. Sta, M. Jlassi, P. Koralli, M. Hajji, M. Kandyla, G. Mousdis, M. Kompitsas, and H. Ezzaouia, *Effect of palladium doping on the structural, optical, and electrical properties of NiO films prepared by spin coating*, 5th International Symposium on Transparent Conductive Materials, Chania, Greece (October 2014).
8. P. Koralli, M. Kandyla, G. Mousdis, M. Sideris, M. Kompitsas, M. Girtan, and D.E. Manolakos, *Sol-gel grown compound ZnO thin films for photovoltaic applications*, 5th International Symposium on Transparent Conductive Materials, Chania, Greece (October 2014).
9. D. Kotsifaki, M. Kandyla, and P. Lagoudakis, *Plasmonic nanotweezers based on femtosecond-laser nanostructured substrates*, 30th Panhellenic Conference on Solid-State Physics and Materials Science, Heraclion, Greece (September 2014).
10. I. Sta, M. Jlassi, M. Kandyla, M. Hajji, P. Koralli, M. Kompitsas, and H. Ezzaouia, *Sensing characteristics of NiO and NiO:Li thin films deposited by the sol-gel method on glass substrates*, 30th Panhellenic Conference on Solid-State Physics and Materials Science, Heraclion, Greece (September 2014).
11. M. Kompitsas, P. Koralli, M. Kandyla, G. Mousdis, and M. Girtan, *Low cost and high efficiency, second generation thin film solar cells*, 10th International Conference on Physics of Advanced Materials (ICPAM-10), Iasi, Romania (September 2014).
12. M. Kompitsas, M. Kandyla, P. Koralli, and G. Mousdis, *Thin-film, metal oxide electrochemical gas sensors, functionalized with noble metal nanoparticles*, 1st Autumn School on Physics of Advanced Materials (PAMS-1), Iasi, Romania (September 2014).
13. D. Kotsifaki, M. Kandyla, and P. Lagoudakis, *Optical forces in nanostructure-enhanced plasmonic tweezers*, European Materials Research Society (E-MRS) 2014 Spring Meeting, Lille, France (May 2014).

14. D. Kotsifaki, P. Lagoudakis, and M. Kandyla, *Near-field enhanced optical nanotweezers based on laser-structured substrates*, SPIE Photonics Europe, Brussels, Belgium (April 2014).
15. M. Kandyla, A. Mellos, and M. Kompitsas, *Reactive pulsed laser deposition of amorphous hydrogenated silicon thin films for solar cell applications*, SPIE Photonics Europe, Brussels, Belgium (April 2014).
16. D. Kotsifaki, P. Lagoudakis, and M. Kandyla, *Optical nanotrapping*, 2nd International Conference on Research Infrastructures, Athens, Greece (April 2014).
17. A. Mellos, P. Koralli, M. Kandyla, M. Kompitsas, and D.E. Manolakos, *Structural, optical, and electrical properties of hydrogenated Si:H thin films grown by pulsed laser deposition*, XXIX Panhellenic Conference of Solid State Physics and Materials Science, Athens, Greece (September 2013).
18. P. Koralli, M. Kandyla, M. Kompitsas, G. Mousdis, M. Girtan, and D.E. Manolakos, *Laser scribing of thin films for second generation, large scale monolithic photovoltaics*, XXIX Panhellenic Conference of Solid State Physics and Materials Science, Athens, Greece (September 2013).
19. M. Kandyla, A. Mellos, and M. Kompitsas, *Hydrogenated amorphous silicon films grown by pulsed laser deposition*, Conference on Lasers and Electro-Optics Europe (CLEO/Europe-IQEC 2013), Munich, Germany (May 2013).
20. M. Kandyla, C. Chatzimanolis, C. Charitidis, M. Guziewicz, and M. Kompitsas, *Optimized hydrogen sensing properties of PLD-grown nanocomposite NiO:Au and NiO:Pd thin films at ppb-concentration levels*, Conference on Lasers and Electro-Optics Europe (CLEO/Europe-IQEC 2013), Munich, Germany (May 2013).
21. M. Kandyla, C. Chatzimanolis, V. Tsikourkitoudi, I. Kartsonakis, C. Charitidis, M. Kompitsas, and M. Guziewicz, *Structural and mechanical properties of RF*

magnetron-sputtered NiO thin films and their surface sensitizing by Pd-nanoparticles for hydrogen sensing below the one ppm limit, 4th International Symposium on Transparent Conductive Materials, Hersonissos, Greece (October 2012).

22. C. Chatzimanolis, M. Kandyla, C. Charitidis, M. Kompitsas, and I. Hotovy, *Growth and characterization of Au-nanoparticles sensitized NiO thin films for hydrogen sensing down to a few ppm*, 4th International Symposium on Transparent Conductive Materials, Hersonissos, Greece (October 2012).
23. C. Popescu, A. Popescu, I. Iordache, M. Kandyla, E. Markou, N. Koralli, D.E. Manolakos, and M. Kompitsas, *Optical sensor based on the surface plasmon resonance of noble metal nanoparticles on the surface of a transparent conductive oxide for cholesterol detection*, 4th International Symposium on Transparent Conductive Materials, Hersonissos, Greece (October 2012).
24. M. Guziewicz, J. Grochowski, K. Golaszewska, J.Z. Domagala, B. Witkowski, E. Kamińska, M. Kandyla, C. Chatzimanolis, M. Kompitsas, and A. Piotrowska, *Hydrogen sensing properties of thin NiO films deposited by RF sputtering*, Eurosenors 2012, Krakow, Poland (September 2012).
25. M. Kandyla, D.G. Kotsifaki, I. Zergioti, M. Makropoulou, E. Chatzitheodoridis, and A.A. Serafetinides, *Optical tweezers with enhanced efficiency based on laser-structured substrates*, European Materials Research Society (E-MRS) 2012 Spring Meeting, Strasbourg, France (May 2012).
26. M. Kandyla, C. Chatzimanolis, V. Tsikourkitoudi, I.A. Kartsonakis, I. Hotovy, C. Charitidis, and M. Kompitsas, *Nanocomposite NiO:Au hydrogen sensors with a few ppm sensitivity and low operating temperature*, European Materials Research Society (E-MRS) 2012 Spring Meeting, Strasbourg, France (May 2012).
27. M. Kandyla, I. Fasaki, and M. Kompitsas, *NiO:Au thin-film hydrogen sensors grown by a two-laser, two-target PLD technique*, International Conference on Laser Ablation, Playa del Carmen, Mexico (November 2011).

28. M. Kandyla, C. Pandis, S. Chatzandroulis, P. Pissis, and I. Zergioti, *Direct laser printing of thin-film polyaniline devices*, International Conference on Laser Ablation, Playa del Carmen, Mexico (November 2011).
29. [Invited] M. Kandyla, I. Kalpyris, M.M. Stylianakis, E. Kymakis, N. Boukos, and I. Zergioti, *Laser fabrication of organic solar cells*, World Materials Summit, Washington, DC USA (October 2011).
30. M. Kandyla, P. Perdika, I. Fasaki, and M. Kompitsas, *Stability and high sensitivity of a compound NiO:Au thin film hydrogen sensor grown by a two-laser, two-target PLD technique*, Eurosensors 2011, Athens, Greece (September 2011).
31. I. Kalpyris, M. Kandyla, M.M. Stylianakis, E. Kymakis, N. Boukos, and I. Zergioti, *Laser printing of semiconducting polymer materials for organic solar cells*, International Symposium on Flexible Organic Electronics, Thessaloniki, Greece (July 2011).
32. I. Kalpyris, M. Kandyla, and I. Zergioti, *Laser printing of semiconducting polymer materials for organic solar cells*, European Materials Research Society (E-MRS) 2011 Spring Meeting, Nice, France (May 2011).
33. M. Kandyla, C. Pandis, G. Tsekenis, P. Dimitrakis, S. Chatzandroulis, and I. Zergioti, *Biosensor fabrication by direct laser microprinting*, 2010 Frontiers in Optics/Laser Science Conference, Rochester, NY USA (October 2010).
34. M. Kandyla, G. Tsekenis, P. Dimitrakis, S. Chatzandroulis, C. Pandis, and I. Zergioti, *Fabrication of polyaniline biosensors using the laser induced forward transfer process*, European Materials Research Society (E-MRS) 2010 Spring Meeting, Strasbourg, France (June 2010).
35. M. Kandyla, G. Tsekenis, C. Boutopoulos, S. Chatzandroulis, P. Dimitrakis, and I. Zergioti, *Fabrication of biosensors using the laser induced forward transfer*

process, International Conference on Laser Ablation, Singapore (November 2009).

36. E. Drakaki, M. Kandyla, E. Chatzitheodoridis, I. Zergioti, A.A. Serafetinides, A. Terlixli, E. Kouloumpi, A. Moutsatsou, M. Doulgerides, V. Kantarelou, A. Karydas, and C. Vlachou-Mogire, *Laser conservation of metallic objects of historical significance*, International Conference on Laser Ablation, Singapore (November 2009).
37. E. Drakaki, B. Klingenberg, I. Tsilikas, E. Zoros, M. Kandyla, and A.A. Serafetinides, *Laser cleaning and characterization of old corroded metal coins*, International Conference on Laser Ablation, Singapore (November 2009).
38. E. Drakaki, B. Klingenberg, I. Tsilikas, E. Zoros, M. Kandyla, and A.A. Serafetinides, *Laser cleaning of corroded metal coins using laser techniques*, International Conference on Laser Technologies and Lasers, Smolyan, Bulgaria (October 2009).
39. E. Drakaki, B. Klingenberg, I. Tsilikas, E. Zoros, M. Kandyla, A.A. Serafetinides, V. Kantarelou, A.G. Karydas, E. Kontou, N. Katsikosta, P. Tselekas, and D. Evgenidou, *Evaluation of laser cleaning of ancient Greek, Roman and Byzantine coins*, European Conference on Applications of Surface and Interface Analysis, Antalya, Turkey (October 2009).
40. E. Drakaki, M. Kandyla, E. Chatzitheodoridis, I. Zergioti, A.A. Serafetinides, A. Terlixli, E. Kouloumpi, A. Moutsatsou, M. Doulgerides, V. Kantarelou, A. Karydas, and C. Vlachou-Mogire, *Laser studies of metallic artworks*, European Conference on Applications of Surface and Interface Analysis, Antalya, Turkey (October 2009).
41. A.A. Serafetinides, E. Drakaki, E. Fabrikesi, M. Kandyla, I. Zergioti, C. Vlachou-Mogire, R.R. Thomson, A.K. Kar, N. Boukos, and A.G. Karydas, *Comparative evaluation of ultrafast laser beam interactions with the silvering in late roman coins*, World of Photonics Congress 2009, Munich, Germany (June 2009).

42. T. Shih, C. R. Mendonca, M. Kandyla, , R. F. Aroca, C. J. L. Constantino, and E. Mazur, *Ultrafast reflectivity dynamics in bis (n-butylimido) perylene thin films*, Conference on Lasers and Electro-Optics (CLEO/QELS) 2008, San Jose, CA USA (May 2008).
43. S. Kudryashov, M. Kandyla, C.A.D. Roeser, and E. Mazur, *Transient picometer atomic displacements in α -Te photoexcited by femtosecond laser pulses*, International conference on coherent and nonlinear optics, Minsk, Belarus (June 2007).
44. M. Kandyla, T. Shih, and E. Mazur, *Femtosecond dynamics of the laser-induced solid-to-liquid phase transition in aluminum*, Conference on Lasers and Electro-Optics (CLEO/QELS) 2007, Baltimore, MD USA (May 2007).
45. M. Kandyla, C. Roeser, and E. Mazur, *Ultrafast frequency dynamics of coherent phonons in Te under high density photoexcitation*, Photonics West 2006 conference, San Jose, CA USA (January 2006).
46. J. Orcutt, P. Tayalia, M. Kandyla, and E. Mazur, *Femtosecond time-resolved dual-angle reflectometry to observe laser-induced dynamics in solids*, Gordon Research Conference on Laser Interactions with Materials, Proctor Academy, Andover, NH USA (August 2004).
47. [Invited] C. Roeser, M. Kandyla, and E. Mazur, *Control of coherent optical phonons in tellurium*, Photonics West 2004 Conference, San Jose, CA USA (January 2004).
48. M. Kandyla, C.A.D. Roeser, A.M.-T. Kim, and E. Mazur, *Ultrafast phase transitions in solids*, International School of Atomic and Molecular Spectroscopy, Erice, Italy (May 2003).