

# CURRICULUM VITAE

## NIKOLAOS A. VAINOS

### PERSONAL DATA

**Date / Place of Birth:** 9 January 1960 / Amfissa, Greece  
**Orign/Nationality:** Greek  
**Marital Status:** Married / One daughter  
**Professional Address:** Dept. of Materials Science, Univ. of Patras, Patras 26500, Greece

### EDUCATION

1982 Pthio Physikis, University of Ioannina, Greece  
1985 Master of Science in “Lasers and their Applications”, University of Essex, UK  
1989 Doctorate of Philosophy in Physics, University of Essex, UK

### PROFESSIONAL POSITIONS

1988-1991 Research Associate; SERC-Central Laser Facility, Rutherford Appleton Laboratory, U.K.  
1991-1995 Research Scientist; Foundation for Res. and Tech. Hellas-IESL (FORTH-IESL),  
Head of Applied Nonlinear Optics & Opt. Proces. Laboratory, Heraklion, Greece  
1995- 2000 Researcher C’ (1995) and Researcher B’ (1998) FORTH-IESL, Founder and Head of Applied  
NLO & Optical Processing Laboratory  
1992-2000 Member and Consultant; Association for Research Tech. & Training, Greece  
1991-2000 Visiting Professor; Department of Physics, University of Crete, Greece  
1999-2002 Visiting Professor; Dept. of Physics, Aristotle Univ. of Thessaloniki, Greece  
2000-2003 Visiting Professor; Department of Physics, Univ. of Ioannina, Greece  
2000-2005 Researcher B’, National Hellenic Research Foundation (NHRF-TPCI),  
Founder and Head of Photonic Media Laboratory, Athens, Greece  
2005- Collaborating Faculty Member, NHRF, Coordinator of Photonic Media Lab activities  
2005-2009 Associate Professor; Department of Materials Science, University of Patras, Greece  
Founder and Head of Photonic Materials, Structures Applications Labs,  
2009-2011 Deputy Chair of the Department of Materials Science,  
2010- Professor of Photonic Materials Science & Applications, Department of Materials Science,  
Univ. of Patras  
2011-2015 Chair of the Department of Materials Science, Member of the Senate of the University of Patras  
2011-2018 Director of the School of Graduate Studies, Dept. of Materials Science, University of Patras  
2018- Director of the Interinstitutional Graduate Studies Programme ‘Applied Optoelectronics’ co-  
founded with the Dept of Electrical Eng. and Computer Tech, and the Institute of Nanoscience  
Nanotechnology of NCSR Democritus.

### RESEARCH ACTIVITIES: PHOTONICS & OPTOELECTRONICS

**Advanced materials growth and processing:** Physicochemical and pulsed-laser growth of Photonic Materials, Nanostructured inorganic and hybrid media, Polymer-based photonic nanocomposites, Laser Micro & Nanofabrication, 2D/3D structural tailoring, Laser induced manipulation and organisation of materials, Aerogel media and nanostructure fabrication, Soft-Lithography/Nanoimprinting, Biomimetic structures

**Novel Functionalities:** Linear & Nonlinear Optical effects and Functionalities, and Plasmonic effects, Photo-induced, Holographic, Chemioptical effects, Optofluidic effects

**Optoelectronic Devices - Systems - Applications:** Lasers, Free Space and Integrated Photonics, Information Optics & Processing, Holographic and Diffractive Optics, Nanostructured Photonic Sensors, Optical Design and Imaging Technology, Aerogel technologies, Agro-Food photonics, Industrial-Environmental-Security Photonics, Biomedical photonics applications,

## KNOWLEDGE DIFFUSION

Author of over 90 peer reviewed journal articles, over 30 invited and 100 contributed papers in international and national conference events, 15 book and 16 collective volumes, 7 monographs, 2 book Editorials and 3 Special Volumes (J. Opt-P&A, Photonics & Nanostructures and AIP Series), 3 patents granted and numerous technical reports. Coordinator, Organizer and/or Committee Member of more than 15 international workshops, conferences and art&science events. Organiser of numerous technical meetings in the frame of international and national projects and networks. Over 30 dedicated reporters' articles featured in high circulation special technical magazines, general national and international press and electronic mass media; exhibitor in various science and technology expositions.

## OTHER PROFESSIONAL ACTIVITIES

Organisation and lecturing of undergraduate and postgraduate courses in Optics, Photonics and Materials Science. Supervisor of more than 50 undergraduates/graduates/postdocs. Visiting Professor of several universities at home and abroad. Member of *Photonics21*. Chairman of the Governing Committee of the Hellenic Optical Society and Representative in the International Commission for Optics (ICO), Member of various professional societies incl H-PHOS industry-academia cluster. Evaluator/Reviewer for the EC and national agencies.

## RESEARCH PROJECT COORDINATION

➤ *Coordinator (CO) / Scientific Contact (SC)*

### COMPETITIVE RESEARCH PROJECTS FUNDED BY NATIONAL & INTERNATIONAL AGENCIES

1. EU-ESPRIT 6863: "Parallel Optical Processors and Memories" (SC)
2. EU-HCM/ERB4050 PL921612: "Advanced Optical Waveguide Components & Systems"(SC)
3. NATO-COLLABORATIVE RESEARCH GRANT: "Reference beam reconstruction during associative recall in digital holographic memories" (SC)
4. NATO-LINKAGE GRANT: "Novel optical sensors using photorefractive and other nonlinear optical effects" (SC)
5. EU-INCO/INDUSTRIAL MATERIALS & TECHNOLOGIES CONCERTED ACTION: "Inter-European Pulsed Laser Deposition Network" (CO)
6. EU-LATIN AMERICA ACTION: ALFA-PROJECT: "ESPERANZA" "Pulsed laser Deposition of hard materials" (SC)
7. EU-COST P2-ACTION "Applications of Nonlinear Optical Materials" (National representative & SC) [N/A]
8. EU-THEMATIC NETWORK BET2-0616 "Rapid Prototyping and Tooling: Industrial Applications" (SC)
9. NATO Advanced Research Workshop (ARW) on "Unconventional Optical elements for information storage processing and communications" (CO-CoChair)
10. EU-GROWTH "Holographic Authenticity sensors" HOLAUTHENTIC (CO)
11. EU-Marie-Curie Training Site-EULANOMS: Laser Materials Processing (CO)
12. EU-COST P8 ACTION "Materials and systems for optical data storage and processing" (National Representative & SC)
13. EU-IST 2001 "Nanostructured photonic sensors (NANOPHOS)" (CO)
14. EU-INTAS (2006-2009) "High-Sensitive Optical Sensors for Non-destructive Material Testing and Vibration Monitoring" (SC)
15. EU/ESF COST MP0604 ACTION "Optical micro-manipulation by nonlinear nanophotonics" (National Representative & SC)
16. EUROPEAN SPACE AGENCY ESA / ESTEC TEC-MMO/2007/214 "Aerogel optics for special terrestrial and space applications" (CO)
17. GSRT-EPET II: "National Optoelectronic Vision Sensor Systems (NOVISYS)" (Deputy CO)
18. GSRT-EPET II: "AISTOR : Artificial Vision Sensors Network" (CO)
19. PEP-CRETE94: "Robotic articulated-arm laser beam delivery system for rapid prototyping applications" (CO)
20. PEP-CRETE: "Use of prototype excimer laser beam delivery system for medical and archeological applications" (SC)

21. GSRT-PENED96: "Flexible UV-laser-beam modulation/transmission multipurpose system" (CO)
22. GSRT-PAVET2000 "Optical dimensional monitoring of high precision mechanical engineering products" (SC)
23. GSRT-PENED2001 "Thin films for Photonic and Optics applications (EPOPTIC)" (SC)
24. GSRT-PRAXE2002 "Photonic metrology and intelligent sensing" (CO)
25. GSRT-ENTER2001 "Poly-parametric photonic sensors (POLYPHOS)" (CO)
26. GSRT-PENED2003 "Nanostructured hybrid photonic materials for sensors (NYVRIPHOS)" (CO)
27. GSRT-ENTER 2004 "Photonic Transceivers in optical turbulent media" (CO)
28. GSRT-HiPER-GR European High Power laser Energy Research facility (HiPER) (SC)
29. GSRT-ELI-GR European Extreme Light Infrastructure (ELI) (SC)
30. GSRT-HERACLITUS II 2010 "Novel photonic structures with quantum dots and nanoentities" (CO)
31. GSRT-HERACLITUS II 2010 "Development and study of microstructures by use of laser beams for photonic applications" (CO)
32. GSRT-HERACLITUS II 2010 "Characterisation of composite and hybrid materials by secondary acoustic and optical sources produced by ultrashort laser pulses" (CO)
33. GSRT-ARCHIMEDES 2011 "Innovative opto-acoustic device for 3D spatiotemporal micro-characterization of composite materials based on ultrafast laser pulses (NANO-ACOU)" (SC)
34. GSRT-THALIS 2011 "Polymeric photonic systems for application in information technologies (PHOTOPOLIS)" (CO)
35. EU/ESF COST MP1205 ACTION "Advances in optofluidics: integration of complex fluids and photonics" (*National Representative & SC*)
36. HELLAS-CH 2017 (ELI-HiPER-IPERION/CH INFRASTRUCTURES (Deputy SC)
37. GSRT EDK 2018 "Photonic toxin sensors - PHOTOXENS" (CO)

### **SELECTED PRIVATELY FUNDED R&D PROJECTS**

- o "Holographic Eye-Camera", Prototype RTD, UK, 1987. (*International*)
- o "Holographic Eye-lenses", Feasibility study, UK, 1987. (*International*)
- o "Lasers in Textile Industry", Feasibility Study, Athens, Greece, April 1993. (*National*)
- o Laser Graphics and Sculpture Exhibition: "Dendra-Apoxeretismos", Act: Design and Production, Aghios Nikolaos, Crete, Greece 1993. (*National*)
- o "Articulated-arm excimer laser beam delivery system for microsurgery" Prototype System Development, Heraklion, Greece 1995. (*National*)
- o Study on the Development of specialized glass thin films for optoelectronics by pulsed laser deposition. (*International*)
- o Development of optical microstructures for optoelectronics and security. (*International*)
- o Development of micro-piping systems for artificial porosity. (*National*)
- o Laser Micromachining for high  $T_c$  superconductor device fabrication. (*National*)
- o Diode laser characterization. (*National*)
- o Radiometry of Unmanned Air Vehicle. (*National*)
- o PLD of waveguide laser amplifiers for optical telecom application (*International*)
- o Study on advanced solar light non-imaging concentrator (*International*)
- o Radiometry of flare and thermal enhanced tracking system (*National*)
- o Radiometry of a high performance jet engine (*National*)

### **COORDINATION OF SCIENTIFIC EVENTS\***

**\*Excluding membership of organisation/scientific committees as well as technical and managerial meetings in the frame of research projects**

- Chair Open Seminar Days and Workshops, National Network AISTOR on Artificial Vision Sensors
- Coordinator and Co-Chair of the NATO Advanced Research Workshop on *Unconventional optical elements for information storage, processing and communications*", Jerusalem, Israel, October 1998.
- Co-Chair of the 7<sup>th</sup> European Glass Science and Technology Conference "YALOS 2004", Athens, Greece, April 2004.
- Chair of the NANOPHOS International Workshop, Warsaw, Poland, Sept. 2005

- Organiser and Co-Chair of the International Workshop on “*Materials and Systems for Optical Data Storage and Processing*”, COST P8 Action, Loutraki, Greece, May 26-27, 2006
- Member of the Board of the 1<sup>st</sup> Scientific Congress on “*Education-Development -Production*” , Amfissa, Greece, April 2008
- Coordinator & Co-Chair of the “International Commission for Optics (ICO) Topical Meeting on “*Emerging Trends and Novel Materials in Photonics*”, European Cultural Centre of Delphi, Delphi, Greece, 7-9 October 2009
- Organiser & Chair of the Science & Art Conference/Act event "Phos & Zoe" (Light & Light), International Year of Light 2015, Patras, Greece, 8 Dec. 2015.

## THESIS

### 1 N. A. Vainos

“Real-time optical information processing in photorefractive Bi<sub>12</sub>SiO<sub>20</sub>”

Ph.D. Thesis, University of Essex, 1989.

## EDITORIALS

- 1 E Marom, N A Vainos, A Friesem, J Goodman, Editors, “*Unconventional optical elements for information storage, processing and communications*”, Kluwer Academic Publishers, 2000.
- 2 N. A. Vainos, S. Pissadakis, S. Couris, E. Paspalakis, I. Koutselas, Editors, Proceedings of the ICO Topical Meeting on “Emerging Trends and Novel Materials in Photonics”, Delphi, Greece, 7-9 October 2009, American Institute of Physics Conference Proceedings vol. 1288, 2010
- 3 Nikos Vainos and Andrei Rhode, Editors, special issue on “Light induced material organization” J. Opt. 12, (12), 2010
- 4 Vainos Nikolaos A., Paspalakis Emmanuel, Sigalas Michael M., Couris Stelios, Pissadakis Stavros, Editors, Special issue Photonics and Nanostructures-Fundamentals and Applications, 9 (2) 2011
- 5 Nikolaos A. Vainos, Editor, “*Laser growth and processing of photonic structures*”, Woodhead Publishers, Cambridge, UK, 2012

## BOOK CONTRIBUTIONS

1. C. Fotakis, D. Anglos, C. Balas, S. Georgiou, N. A. Vainos, I. Zergioti, V. Zafiropoulos, “Laser technology in Art Conservation”, OSA TOPS on Lasers and Optics in Manufacturing 1996, A. C. Tam Ed., Vol. 9, p.99-104 (1996)
2. V. Tornari, S. Mailis, L Boutsikaris and N A Vainos “Double exposure holographic interferometry of weakly illuminated objects using image amplification in photorefractive media” Academie Verlag Series in Optical Metrology, W. Juptner and W. Osten Eds, Vol. 3, p.228, Academie Verlag, Berlin, 1997.
3. S. Mailis, S. Pissadakis, G. Patrinos, A. Petrakis, L. Boutsikaris, N. A. Vainos, P. Dainty, P. J. Parmitter, and T. J. Hall, “Excimer laser microetching of Computer Generated Holograms for art security encoding" Restauratorenblatter Sonderband, p.109 (1997)
4. M Jelinek, R. W. Eason, A.A. Anderson, C. Grivas, D.S. Gill, J. Sonsky, J. Lancok, L.M.B. Hickey, N. A. Vainos and P. Hribek “Planar waveguide lasers of Ti:Sapphire, and Nd:YAG (YAP) grown by PLD” Optical resonators-Science and Engineering, R. Kossowsky et al, Eds., Kluwer Academic Publishers, Holland, 1998
5. N. A. Vainos “Principles of Optical Imaging” Monograph in Greek, Heraklion 1999

6. **N. A. Vainos**, S. Mailis, V. Tornari, G. Betzos and P. Mitkas “Dynamic holographic image projection: The key to optical interfacing” in *Optics Within Life Sciences*, vol. 5, p.20-28, Springer-Verlag, Berlin 2000
7. S. Mailis, A. Ikiades, **N. A. Vainos**, V. Kulikov and I. Sokolov, “Non-steady state photocurrents in indium oxide thin-film holographic recorders” in *Optics Within Life Sciences*, vol. 5, p.70-74, Springer-Verlag, Berlin 2000
8. V. Tornari, V. Zafiroopoulos, **N. A. Vainos**, D. Fantidou and C. Fotakis “Discrimination of Photomechanical effects in laser cleaning of artworks by means of holographic interferometry” in *Optics Within Life Sciences*, vol. 5, p.208-212, Springer-Verlag, Berlin 2000
9. N. A. Vainos, “Laser Materials Processing for optoelectronics and Information Systems” in *Unconventional optical elements for information storage, processing and communications*, Marom, Vainos, Friesem, Goodman. Eds., Kluwer Acad. Publ, 2000.
10. E.V. Mokrushina, A. A. Petrov, G. Siganakis and N.A. Vainos Dynamics of photoconductivity and the shallow traps parameters in the sillenite-structure crystals” in *Photorefractive Effects, Materials, and Devices*, G. Salamo and A. Siahmakoun, eds., Vol. 62 of OSA Trends in Optics and Photonics (Optical Society of America, 2001), paper 275
11. I.Zergioti, G. Koundourakis, **N.A Vainos**, and C. Fotakis "Laser-Induced Forward Transfer: An approach to Single-Step Microfabrication” (ch16) in “Direct-Write Technologies for Rapid Prototyping Applications: Sensors, Electronics, and Integrated Power Sources” A Pique and D. B. Chrisey Eds, Academic Press, 2001
12. V. Tornari, **N.A. Vainos**, V. Zafirooulos, D. Fantidou, A Bonarou, and C. Fotakis “The use of holographic methods in the study of the conservation of Byzantine icons” in “Byzantine Icons, Art, Technique and Technology”, M. Vassilaki Ed., Crete Univ. Press., Heraklion 2002-
13. **N. A. Vainos** “Laser ablative processing: A route to innovative photonics”, in *Pulsed laser deposition of optoelectronic films, Optoelectronic Materials and Devices Series Vol 2*, (p1-9), INOE Publishers, 2005
14. **N. A. Vainos**, “Laser growth and processing of photonic structures: Preface”, N.A. Vainos, Ed., Woodhead Publishers, Cambridge, UK, 2012
15. **N. A. Vainos**, “Laser growth and processing of photonic structures: Overview of fundamental processes and operations” in “Laser growth and processing of photonic structures”, N.A. Vainos, Ed., Woodhead Publishers, Cambridge, UK, 2012
16. L. Athanasekos, S. Pispas and **N. A. Vainos**, “Organization and microstructuring in soft matter by laser radiation forces” in “Laser growth and processing of photonic structures”, N.A. Vainos, Ed., Woodhead Publishers, Cambridge, UK, 2012

#### PEER REVIEWED JOURNAL PUBLICATIONS

1. **N. A. Vainos** and R. W. Eason, “Real-time edge enhancement for active spatial filtering via five-wave mixing in photorefractive BSO”, *Opt. Commun.* **59**, 167 (1986).
2. **N. A. Vainos** and R. W. Eason, “Spatially multiplexed phase conjugate imaging and processing in photorefractive BSO”, *Opt. Commun.* **62**, 311 (1987).
3. **N. A. Vainos**, J. A. Khoury and R. W. Eason, “Real-time parallel optical logic in photorefractive bismuth silicon oxide”, *Opt. Letts* **13**, 503 (1988).

4. R. W. Eason and **N. A. Vainos**, "Photoconductive enhancement of DFWM reflectivity in BSO", *J. Mod. Opt.*, **35**, 491 (1988).
5. **N. A. Vainos** and R. W. Eason, "Strictly real-time image differentiation in BSO", *J. Mod. Opt.*, **35**, 505 (1988).
6. **N. A. Vainos**, "Real-time optical Wiener-Kolmogorov and novelty filtering with phase conjugation" *Opt. Letts*, **19**, 128 (1989).
7. **N. A. Vainos**, S. L. Clapham and R. W. Eason, "Multiplexed permanent and real time holographic recording in photorefractive BSO", *Appl. Opt.* **28**, 4381 (1989).
8. **N. A. Vainos**, S. L. Clapham and R. W. Eason, "Applications of multiplexed real time and permanent holographic recording in photorefractive BSO", *Appl. Opt.* **28**, 4386 (1989).
9. **N. A. Vainos** and M. C. Gower, "High Fidelity image amplification and phase conjugation in photorefractive  $\text{Bi}_{12}\text{SiO}_{20}$ ", *Opt. Letts*. **16**, 363 (1991).
10. **N. A. Vainos** and M. C. Gower, "High-Fidelity phase conjugation and real-time orthoscopic 3-D image projection in  $\text{BaTiO}_3$ ", *J. Opt. Soc. Am.* **B**, **8**, 2355 (1991).
11. S. L. Clapham, R. W. Eason and **N. A. Vainos**, "Spatial light modulation via enhanced diffraction efficiency of photochromic gratings in photorefractive BSO", *Opt. Commun.*, **74**, 290 (1990).
12. K. Youden, R. W. Eason, M. C. Gower and **N. A. Vainos**, "Epitaxial Growth of  $\text{Bi}_{12}\text{GeO}_{20}$  thin-film optical waveguides using excimer laser ablation" *Appl. Phys. Lett.*, **59**, 1929 (1991).
13. **N. A. Vainos**, S. Mailis and M. C. Gower, "Pulsed amplification of CW signal fields in photorefractive  $\text{BaTiO}_3$ ", *Appl. Phys. Lett.*, **60**, 1529 (1992).
14. P. M. Jeffrey, S. L. Clapham, R. W. Eason, D. A. Fish, A. K. Powell, T. J. Hall and **N. A. Vainos**, "Mechanism of photorefractive enhancement of photochromic gratings in BSO- experimental results and phenomenological modelling", *Opt. Commun.*, **98**, 357 (1993).
15. S. Mailis and **N. A. Vainos**, "Photorefractive adaptive transmission system", *Appl. Opt.*, **32**, 7285 (1993).
16. S. Mailis, L. Boutsikaris and **N. A. Vainos**, "Multiplexed Static and dynamic photorefraction on in  $\text{Bi}_{12}\text{SiO}_{20}$  crystals at 780nm", *J. Opt. Soc. Am.* **B11**, 1996 (1994).
17. D.S. Gill, R.W. Eason, C. Zaldo, H.N. Rutt and **N.A. Vainos**, "Characterization of Ga-La-S chalcogenide glass thin optical waveguides fabricated by pulsed laser deposition", *J. Non. Cryst. Solids* **191**, 321 (1995).
18. S. Mailis, L. Boutsikaris and **N. A. Vainos (INVITED)**, "Photorefraction at 780 nm in  $\text{Bi}_{12}\text{SiO}_{20}$ : Effects and Applications", *Asian Journal of Physics*, **4**, 31-44 (1995).
19. **N. A. Vainos**, S. Mailis, S. Pissadakis, L. Boutsikaris, P. Dainty, Ph. Parmitter and T.J. Hall, "Excimer laser use for microetching computer-generated holographic structures", *Appl. Opt.* **35**, 6304 (1996).
20. S. Mailis, L. Boutsikaris, **N. A. Vainos**, C. Xirouhaki, G. Vasiliou, N. Garawal, G. Kyriakidis and H. Fritzsche, "Holographic recording in indium oxide ( $\text{InO}_x$ ) and indium tin oxide ( $\text{In}_2\text{O}_3:\text{Sn}$ ) thin films", *Appl. Phys. Lett.* **69**, 2459 (1996).

21. S. Mailis, L. Boutsikaris, **N. A. Vainos**, C. Xirouhaki, G. Vasiliou, N. Garawal, G. Kyriakidis and H. Fritzsche (**INVITED**), "Dynamic holography in indium oxide and indium in oxide thin films", *Optical Memory and Neural Networks* **5**, (3), 191 (1996).
22. **N. A. Vainos**, S. Mailis, S. Pissadakis, L. Boutsikaris, P. Dainty, Ph. Parmitter and T.J. Hall (**INVITED**), "Fabrication of surface relief microstructures for optical interconnects by excimer laser microetching", *Optical Memory and Neural Networks* **5**, (4), 271 (1996).
23. C.L. Bonner, A.A. Anderson, R.W. Eason, D.P. Shepherd, D.S. Gill, C. Grivas and **N. A. Vainos**, "Performance of a low loss pulsed Laser Deposited Nd:Gd<sub>3</sub>Ga<sub>5</sub>O<sub>12</sub> waveguide Laser at 1.06μm and 0.94 μm", *Opt. Letts.* **22**, (13) 988 (1997).
24. A. A. Anderson, R. W. Eason, L. M. B. Hickey, M Jelinek, Ch. Grivas, D. S. Gill and **N. A. Vainos**, "Ti:Sapphire planar waveguide laser grown by pulsed laser deposition", *Opt. Letts.* **22**, (20),1556 (1997).
25. L. Boutsikaris, S. Mailis and **N. A. Vainos**, "Determination of the photorefractive parameters of Bi<sub>12</sub>SiO<sub>20</sub> by study of the dynamic behavior of complementary gratings", *J. Opt. Soc. Am.* **B 15** (3), 1042 (1998).
26. A.A. Anderson, C.L. Bonner, D.P. Shepherd, R.W. Eason, Chr. Grivas, D.S. Gill and **N. A. Vainos** "Low loss (0.5 dB/cm) Nd: Gd<sub>3</sub>Ga<sub>5</sub>O<sub>12</sub> waveguide layers grown by pulsed laser deposition" *Opt. Commun.* **144**, 183 (1997).
27. I. Zergioti, S. Mailis, **N. A. Vainos**, C. Fotakis, S. Chen and C. P. Grigoropoulos, "Microdeposition of metals by femtosecond excimer laser", *Appl. Surf. Science*, **127-129**, 601-605(1998).
28. Ch. Grivas, S. Mailis, L Boutsikaris, D S Gill, **N. A. Vainos** and P. J. Chandler, "Growth and performance of pulsed laser deposited indium oxide thin-film holographic recorders", *Laser Physics* **8**, (1) 326 (1998).
29. I. Zergioti, S Mailis, **N. A. Vainos**, C P Grigoropoulos and C Fotakis, "Direct Microdeposition of Diffractive Structures Using Femtosecond Excimer Laser", *Laser Physics*, **8**, (1) 313 (1998)
30. **N. A. Vainos**, Ch. Grivas, C. Fotakis, R W Eason, A. A. Anderson, D. S. Gill, D. P. Shepherd, M Jelinek, J. Lancock and J. Sonsky, "Planar Waveguides of Ti:Sapphire, Nd:GGG and Nd:YAG grown by pulsed laser deposition", *Appl. Surf. Science*, **129**, 514 (1998).
31. C. Grivas, D.S. Gill, S. Mailis, L. Boutsikaris and **N. A. Vainos**, "Indium oxide thin-film holographic recorders grown via excimer laser reactive sputtering", *Appl. Phys. A* **66**, (2) 201(1998).
32. I. Zergioti, S. Mailis, **N. A. Vainos**, P. Papakonstantinou, C. Kalpouzou, C. P. Grigoropoulos and C. Fotakis, "Microdeposition of metal and oxide structures using ultrashort laser pulses", *Appl. Phys. A* **66**, (5), 579 (1998).
1. K. Moschovis, E. Gagaoudakis, E. Chatzitheodoridis, G Kiriakidis, S. Mailis, E. Tzamali, **N. A. Vainos** and H Fritzsche, "Study of the ambient optical recording dynamics on sputtered indium oxide thin films", *Appl. Phys. A* **66**, (6), 651-4 (1998).
34. S. Mailis, A. A. Anderson, S. J. Barrington, W.S. Brocklesby, R. Greef, H. N. Rutt, R.W. Eason, **N. A. Vainos** and Chr. Grivas, "Photosensitivity of lead germanate glass waveguides grown by pulsed laser deposition", *Opt. Letts*, **23**, (22), pp1751-1754 (1998).

35. S. Mailis, Chr. Riziotis, Ji Wang, E. Taylor, A.A. Anderson, S. J. Barrington, H. N. Rutt, R.W. Eason, **N. A. Vainos** and Chr. Grivas., “Growth and Characterization of pulsed laser deposited lead-germanate glass optical waveguides”, *Opt. Materials* **12**, 27-33 (1999).
36. S. Mailis, I. Zergioti, G. Koundourakis, A Ikiades, A. Patentalaki, P. Papakonstantinou, **N. A. Vainos** and C. Fotakis , “Etching and printing of diffractive optical microstructures by femtosecond excimer laser”, *Appl. Opt.* **38**, 2301-2308 (1999).
- 37 I. Zergioti, S. Mailis, **N. A. Vainos**, A. Ikiades, C. P. Grigoropoulos and C. Fotakis, “Microprinting and microetching of diffractive structures using ultrashort pulses”, *Appl. Surf. Science*, **138-139**, 82-86 (1999).
- 38 S. Pissadakis, S. Mailis, L. Reekie, J.S. Wilkinson, R.W. Eason, **N. A. Vainos**, K. Moschovis and G. Kiriakidis, “Permanent holographic recording in indium oxide thin films using 193nm excimer laser radiation”, *Appl. Phys. A* **69**, 333 (1999).
- 39 P. Papakonstantinou, **N. A. Vainos** and C. Fotakis, “Microfabrication by UV femtosecond laser ablation of Pt, Cr and indium oxide thin films”, *Appl. Surf. Science* **151**, 159 (1999).
- 40 S. Mailis, L Reekie, S. Pissadakis, S J Barrington, R W Eason, **N A Vainos** and C. Grivas, “Large photoinduced refractive index changes in pulsed laser deposited lead germanate glass waveguides with controllable refractive index sign change”, *Appl. Phys. A.* **69**, (7) S671-4 (1999).
- 41 P.A. Atanasov, R. I Tomov, J. Perriere, R.W. Eason, **N. A Vainos**, A. Klini, A. Zherikhin and E. Millon, “Growth of Nd: potassium gadolinium tungstate thin-film waveguides by pulsed laser deposition”, *Appl. Phys. Lett.* **76**, 2490 (2000).
- 42 V. Tornari, V. Zafropulos, A. Bonarou, **N.A. Vainos** and C. Fotakis, "Modern technology in artwork conservation: a laser-based approach for process control and evaluation", *Optics and Lasers in Engineering* **34**, 309-326, (2000).
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