

Curriculum Vitae



Professor Emeritus Thomas Efthimiopoulos

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Publications

1. T. Efthimiopoulos, E. Kritsotakis, L. Naoumidis. H. Kiagias and E. Helidonis, "Ablation rate and threshold of cartilage by a XeCl excimer laser", J. Appl. Phys. **87**, 2020, 2000.
2. T. Efthimiopoulos, Ch. Kiagias, G. Heliotis and E. Helidonis, "Evidence of volume bubble creation during laser ablation of PMMA organic polymer", Canadian J. Phys. **78**, 509, 2000.
3. T. Efthimiopoulos, D. Dogas, I. Palli, Ch. Gravalidis and M. Campbell, "Plasma shielding of a XeCl laser irradiated YBCO target", Appl. Phys. A, **71**, 325, 2000.
4. T. Efthimiopoulos, D. Dogas, I. Palli, Ch. Gravalidis and M. Campbell, "Screening effects of the excimer laser produced plasma of YBCO", Journal of Materials Processing Technology, 4725, **1**, 2000.
5. D. Dogas, T. Efthimiopoulos, C. Andreouli and M. Campbell, "Acoustic wave monitoring of the excimer laser ablation of YBCO high Tc superconductor", Appl. Phys. A, 2001.
6. M. Katharakis, N. Merlemis, A. Serafetinides, and T. Efthimiopoulos, "Four wave mixing and parametric four wave mixing near the 4P-4S transition of potassium atom", Journal of Physics B. **35**, 4969-4980, 2002.
7. N. Merlemis, M. Katharakis, E. Koudoumas, T. Efthimiopoulos, "Wave mixing and quantum interference effect in potassium atoms", Proc. SPIE Vol. 5131, 83-90, 2003.
8. N. Merlemis, M. Katharakis, E. Koudoumas and T. Efthimiopoulos, "Stimulated emissions and quantum interference in potassium-atom laser interaction", Journal of Physics B. **36**, 1943-1956, 2003.
9. M. Katharakis, N. Merlemis, Alexandros A. Serafetinides, T. Efthimiopoulos, "Four-wave mixing near the 4P-4S transition of a potassium atom", Proc. SPIE, **5131**, 73-77, 2003.
10. D. Zigos, Tom Efthimiopoulos, G. Kourouklis, "Photo-dissociated HgBr₂ for mode-locking excimer lasers", Proc. SPIE, **5131**, 187-189, 2003.
11. HgBr₂ two photon dissociation as passive mode locking for long pulse excimer lasers, D. Zigos and T. Efthimiopoulos, Appl. Physics B 2003.
12. C. Andreouli, T. Efthimiopoulos, S. Christoulakis, A. Tsetsekou, C. Panagopoulos, "Influence of irradiated target modification on the quality of pulsed laser deposited YBa₂Cu₃O_{7-x} thin films", J. Eur. Ceramic Society **24**, 3623, 2004.

13. N. Merlemis, A. Lyras, M. Katharakis and T. Efthimiopoulos, "Amplified spontaneous emission without population inversion in potassium vapor by internally generated fields", *J. Phys. B: At. Mol. Opt. Phys.* **39**, 1913-1927, 2006.
14. D. Pentaris, N. Merlemis, A. Lyras and T. Efthimiopoulos, Parametric four-wave mixing in low atomic density of Potassium, ICCMSE 2007, Sept. 25-28, CORFU Greece, 2007.
15. T. Efthimiopoulos, H. Kiagas, S. Christoulakis, N. Merlemis, "Bubble creation and collapse during excimer laser ablation of weak absorbing polymers", *Applied Surface Science* **254** 5626-5630, 2008.
16. M. Sucheas, S. Christoulakis, C. Tibeica, M. Katharakis, N. Kornillios, T. Efthimiopoulos, E. Koudoumas, "Structural and morphological properties of thin ZnO films grown by pulsed laser deposition", *Applied Surface Science* **254**, 5475-5480, 2008.
17. N. Merlemis, E. Reppa and T. Efthimiopoulos, "Narrowband emission of argon dimers in a dc discharge with supersonic expansion", *Applied Physics B: Lasers and Optics* **91**, 183-188, 2008.
18. D. Pentaris, T. Marinos, N. Merlemis and T. Efthimiopoulos, "Optical free induction memory in potassium vapor under a partially-truncated two-photon excitation", *Journal of Modern Optics* **56**, 840-850, 2009.
19. D. Pentaris, T. Efthimiopoulos, V. Vaicaitis and N. Merlemis, "Axial and conical parametric emissions from potassium atoms under two-photon fsec excitation", *Applied Physics B*, **98**, 383, 2010.
20. D. Pentaris, G. Chatzikyriakos and T. Efthimiopoulos, "Emissions in potassium vapour under 4S-7S two-photon nsec excitation", *ICO Photonics 2009, AIP Conf. Proceedings*, **1288**, 170-173, 2010.
21. A. Almyras, D. Pentaris, N. Merlemis and T. Efthimiopoulos, "The saturation effect of the parametric emissions in potassium atoms under two-photon excitation", *ICO Photonics, 2009, AIP Conf. Proceedings*, **1288**, 80-83, 2010.
22. K. Pipergias, D. Yiasemidis, E. Reppa, N. Merlemis, V. Giannetas and T. Efthimiopoulos, "VUV emission of Ar dimers in a supersonic expansion excited by a low energy discharge", *ICO Photonics 2009, AIP Conf. Proceedings*, **1288**, 147-150, 2010.
23. T. Efthimiopoulos, N. Merlemis, M. E. Movsessian, D. Pentaris and M. Katharakis, "Action of Counter-propagating beams on two-photon excitation of potassium vapor", *J. Phys. B*, **43**, 055401, 2010.
24. A. Armyras, D. Pentaris, T. Efthimiopoulos, N. Merlemis and A. Lyras "Saturation and population transfer of a two-photon excited four-level potassium atom", *Journal of Physics B: At. Mol. Opt. Phys.* **44**, 165401, 2011.
25. D. Pentaris, T. Efthimiopoulos, N. Merlemis and A. Lyras, "Temporal dynamics of the internally generated radiations in a two-photon excited four-level potassium atom", *Journal of Modern Optics*, **59**, 179, 2011.
26. D. Pentaris, T. Efthimiopoulos, N. Merlemis, V. Vaicaitis and A. Lyras, "Emissions from high density potassium atoms excited by either nanosecond or femtosecond laser pulses", *Applied Physics B*, *in print*, 2012.
27. D. Pentaris, T. Efthimiopoulos, N. Merlemis and A. Lyras, "Control of the emission channels response in laser-potassium atom interaction", *in peer review*, *Eur. Phys. J. D*, 2012.

Conference participation

1. "Vacuum plasma spraying WC-12% Co coatings: Optimization parameters and subsequent laser treatment", I. Palli, D. Grimanelis, D. Dogas, T. Efthimiopoulos and C.N. Panagopoulos, Int. Conference of Surface Modification Technology, Paris France, 13-15 Sept. 2000.
2. "Acoustic wave monitoring of the ablation process", T. Efthimiopoulos, Ch. Kiagias and I.G. Pallikaris, Int. Conf. on Photoacoustic and Photothermal Phenomena, June 24-27, 2002, Toronto Canada (accepted).
3. "Wave mixing and quantum interference effect in potassium atoms", N. Merlemis, M. Katharakis, E. Koudoumas and T. Efthimiopoulos, International GI conf, on New Lasers and Appl., Patras, Sept. 2002.
4. "Four-wave mixing near the 4P-4S transition of a potassium atom", M. Katharakis, N. Merlemis, A. Serafetinides and T. Efthimiopoulos same as above.
5. "Photo-dissociated HgBr₂ for mode-locking excimer lasers", D. Zigos, T. Efthimiopoulos, and G. Kourouklis, same as above.
6. Bubble dynamics during the laser ablation of PMMA, F. Efthimiopoulos, Ch. Kiagias and S. Christoulakis, Conference on Laser Ablation (COLA) Hersonissos, Crete, Greece, Oct. 5-10, 2003.
7. "Wave mixing and quantum interference effect in potassium atoms", N. Merlemis, M. Katharakis, E. Koudoumas, Tom Efthimiopoulos, Proc. SPIE, **5131**, 83-90, 2003.
8. "Four-wave mixing near the 4P-4S transition of a potassium atom", M. Katharakis, N. Merlemis, A. Serafetinides, T. Efthimiopoulos, GI International Conf. on New Laser Sources and Laser Appl., Patras Greece Sept. 2003. (Proc. SPIE, **5131**, 73-77, 2003).
9. "Dynamics of XeCl excimer laser ablation of PMMA polymer", T. Efthimiopoulos, H. Kiagias and S. Christoulakis, XV International Symposium on Gas Flow and Chemical Lasers and High power Lasers Conf. Prague Czech Republic Aug. 2004.
10. "The XeCl Flux effect on YBCO targets, the Resulting Films and Nanoparticles", C. Andreouli, T. Efthimiopoulos, Ch. Panagopoulos and C.J. Stournaras, XV International Symposium on Gas Flow Chemical Lasers and High Power Laser Conf., Prague Czech Republic Aug. 2004.
11. "Electromagnetically induced transparency by internally generated fields under two photon excitation", N. Merlemis, T. Efthimiopoulos, M. Katharakis and A. Lyras, CLEO EQEC, Munich Germany, June 2005.
12. "Parametric four- wave mixing in low atomic density of Potassium", D. Pentaris, N. Merlemis, A. Lyras and T. Efthimiopoulos, ICCMSE 2007, Sept. 25-28, CORFU Greece, 2007.
13. "Parametric processes and optical memory effects in potassium atoms excited by two-photons", D. Pentaris, N. Merlemis, V. Vaicaitis, T. Marinos and T. Efthimiopoulos, Laser Physics Conf., Nordheim Norway, July 2008.
14. "Emissions in potassium vapour under 4S-7S two-photon nsec excitation", D. Pentaris, G. Chatzikyriakos and T. Efthimiopoulos, ICO-Photonics Delphi Greece Oct. 2009.
15. "The saturation effect of the parametric emissions in potassium atoms under two-photon excitation", A. Almyras, D. Pentaris, N. Merlemis and T. Efthimiopoulos, ICO-Photonics Delphi Greece Oct. 2009.
16. "VUV emission of Ar dimmers in a a supersonic expansion excited by a low energy discharge", K. Pipergias, D. Yiasemidis, E. Reppa, N. Merlemis, V. Giannetas and T. Efthimiopoulos, ICO-Photonics Delphi Greece Oct. 2009.

International cooperation

1. Greek-Polish on Physics curriculum through a TEMPUS-Tacis program, 1998-2000.
2. Greek-Polish, with C. Radewitz of the Univ. of Warsaw, on nonlinear atom-laser interaction, 2001-2003.
3. Greek-German, with A. Ulrich of the TU of Munich on XUV and X-ray laser.
4. Greek-Lithuanian, Laser lab. Vilnius University, on non-linear and quantum interference effects in the laser interaction with Potassium atoms, 2007, 2008, 2010, 2011.

Invited Lectures and Seminars

1. Laser potassium atom interaction, Technical Univ. of Munich, Laser Group, Physics Dept. Dec. 1996.
2. Lasers in Medicine, 15-hour lectures at the Graduate International Medical Physics Program, administered by the Univ. of Patras, 1996-2000 and 2003-2010.
3. Bubble creation and collapse during laser ablation of weak absorbing polymers, A. Bolovinos Memorial Lectures, Univ. of Ioannina, Nov. 2008.

Conference organization

1. 3rd Multiphoton Processes Conference, Sept. 1984, Member of the local organizing committee.
2. Lasers and Applications National Conf., Member of the organizing committee. Colimbari, Chania, May 1985.
3. Lasers and Applications National Conf., Member of the organizing committee, Athens 1992 and member of the scientific committee of the subsequent conferences.
4. 2nd Greek-Italian International Conf. on New Laser Technology and Applications, Ancient Olympia, Greece, June 1997, 1999 and 2002. Member of the scientific committee.

Important contributions

1. New semiconductor laser (ZnO), e-beam pumped, emitting in the UV, NcMaster Univ. Canada.
2. Laser modification of the semiconductor properties (GaAs, Sillicites), Univ. of Crete.
3. Wave mixing in nonlinear media for the generation of coherent radiation in the VUV region. Univ. of Toronto.
3. Pulse narrowing in excimer lasers (<100ps pulses) and long pulse excimer lasers (200ns FWHM), Univ. of Toronto and Univ. of Crete.
4. Reduced absorption of the autoionizing states of nonlinear media (Electromagnetically induced Transparency, EIT), Univ. of Crete.
5. High Tc superconducting films development by laser ablation, Univ. of Crete and TEI of Heraklion.

6. Laser ablation mechanism and surface characteristics modification, Univ. of Crete.
LIDAR system development for pollution measurement, Univ. of Crete.
7. Induced transparency in multi electron atomic systems and non-linear effects, Univ. of Patras and Univ. of Crete.
8. VUV and XUV radiation generation from fast plasma expansion, Univ. of Toronto, Crete and Patras.
9. Bubble dynamics in polymers induced by laser radiation, Univ. of Crete.
10. Laser atom interaction modeling for lasing without inversion, Population transfer and quantum interference studies, Univ. of Patras.