

## LIST OF PUBLICATIONS

### A. PAPERS PUBLISHED IN PEER-REVIEW JOURNALS

86. G. Croitoru, F. Jipa, M. Greculeasa, A. Broasca, F. Voicu, L. Gheorghe and N. Pavel, "Buried depressed-cladding waveguides inscribed in Nd<sup>3+</sup> and Yb<sup>3+</sup> doped CLNGG laser crystals by picosecond-laser beam writing," *Materials* **17**(8), 1758 (2024).
85. A. Broasca, M. Greculeasa, F. Voicu, S. Hau, C. Gheorghe, G. Croitoru, N. Pavel, G. Stanciu, A. Petris, P. Gheorghe, F. Albota, A. Serban, L. Gheorghe, "LGYSB:Nd - high-performance lasing in the near-infrared region," *J. Am. Chem. Soc.* **146**(3), 2196-2207 (2024).
84. G. Croitoru, F. Jipa, N. Pavel, "Laser emission from buried depressed-cladding waveguides inscribed in Nd:YAG ceramics by picosecond-laser beam writing," *Opt. Mater.* **148**, 114772 (2024).
83. C. Dumitrache, N. T. Vasile, G. Croitoru, N. Pavel, "Laser-induced ignition of methane-air mixtures by a four-beam, pulse-burst mode passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG laser," *Results Phys.* **42**, 105958 (2022).
82. A. Broasca, M. Greculeasa, F. Voicu, G. Stanciu, S. Hau, C. Gheorghe, C. A. Brandus, N. Pavel, M. Enculescu, L. Gheorghe, "Growth and characterization of 3.5 at.% Nd:LGSB bifunctional crystal," *Opt. Mat.* **123**, 111832 (2022).
81. N. T. Vasile, N. Pavel, "Multi-point laser-induced ignition of air-methane mixtures by a high peak-power passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG laser," *Opt. & Laser Techn.* **141**, 107169 (2021).
80. C. A. Brandus, M. Greculeasa, A. Broasca, F. Voicu, L. Gheorghe, and N. Pavel, "Diode-pumped bifunctional Nd:LGSB laser passively Q-switched by a Cr<sup>4+</sup>:YAG saturable absorber," *Opt. Mater. Express* **11**(3), 685-694 (2021).
79. A. Broasca, M. Greculeasa, F. Voicu, S. Hau, G. Croitoru, C. Gheorghe, N. Pavel, L. Gheorghe, "Efficient near-infrared laser emission and nonlinear optical properties of a newly developed Yb:LYSB laser crystal," *J. Alloys & Comp.* **844**, 156143 (2020).
78. M. Greculeasa, A. Broasca, F. Voicu, S. Hau, G. Croitoru, G. Stanciu, C. Gheorghe, N. Pavel, L. Gheorghe, "Bifunctional La<sub>x</sub>Nd<sub>y</sub>Gd<sub>z</sub>Sc<sub>4-x-y-z</sub>(BO<sub>3</sub>)<sub>4</sub> crystal: Czochralski growth, linear and nonlinear optical properties, and near-infrared laser emission performances," *Opt. & Laser Techn.* **131**, 106433 (2020).
77. R. P. Yavetskiya, A. G. Doroshenko, S. V. Parkhomenko, I. O. Vorona, A. V. Tolmachev, D. Yu. Kosyanov, A. A. Vornovskikh, A. M. Zakharenko, V. Yu. Mayoroc, L. Gheorghe, G. Croitoru, N. Pavel, V. V. Multian, and V. Ya. Gayvoronsky, "Microstructure evolution during reactive sintering of Y<sub>3</sub>Al<sub>5</sub>O<sub>12</sub>:Nd<sup>3+</sup> transparent ceramics: Influence of green body annealing," *J. Eur. Ceram. Soc.* **39**(13), 3867-3875 (2019).
76. P. Ribes-Pleguezuelo, N. Pavel, E. Beckert, C. Damm, A. Bodemann, O. V. Grigore, G. Croitoru, C. A. Brandus, N. T. Vasile, R. Eberhardt, and A. Tünnermann, "Assembly process and optical performances for a golden laser spark-plug device," *Opt. Eng.* **58**(6), 065101 (2019).
75. N. Pavel, R. Chiriac, A. Birtas, F. Draghici, and M. Dinca, "On the improvement by laser ignition of the performances of a passenger car gasoline engine," *Opt. Express* **27**(8), A385-A396 (2019).
74. G. Croitoru (Salamu) and N. Pavel, "Passive Q-Switching by Cr<sup>4+</sup>:YAG Saturable Absorber of Buried Depressed-Cladding Waveguides Obtained in Nd-Doped Media by Femtosecond Laser Beam Writing," *Materials* **11**(9), 1689 (2018).

73. N. Pavel, M. Bärwinkel, P. Heinz, D. Brüggemann, G. Dearden, G. Croitoru, O. V. Grigore, "Laser Ignition - Spark Plug Development and Application in Reciprocating Engines," *Prog. Quantum Electron.* **58**, 1-32 (2018).
72. G. Croitoru (Salamu), F. Jipa, and N. Pavel, "Passive Q-switch laser operation of circular, buried depressed-cladding waveguides realized by direct fs-laser beam writing in Nd:YAG/Cr<sup>4+</sup>:YAG composite media," *Opt. Mat. Express* **7**(7), 2496-2504 (2017).
71. O. V. Grigore, G. Croitoru, T. Dascalu, N. Pavel, "Diode-laser edge-pumped Nd:YAG/YAG lens-shaped composite laser," *Opt. & Laser Techn.* **94**, 86-89 (2017).
70. T. Dascalu, G. Croitoru, O. Grigore, N. Pavel, "High-peak power passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG composite laser with multiple-beam output," *Photonics Research*, **4**(6), 267-271 (2016).
69. F. Khaled, P. Loiseau, F. Voicu, A. Achim, S. Hau, C. Gheorghe, G. Croitoru, N. Pavel, L. Gheorghe, G. Aka, "Spectroscopic properties and laser performances of Yb:LGSB nonlinear optical crystal," *J. Alloys & Comp.* **688** (Part A), 510-517 (2016).
68. G. Salamu and N. Pavel, "Power scaling from buried depressed-cladding waveguides realized in Nd:YVO<sub>4</sub> by femtosecond-laser beam writing," *Opt. & Laser Techn.* **84**, 149-154 (2016).
67. G. Salamu, F. Jipa, M. Zamfirescu, and N. Pavel, "Watt-Level Output Power Operation from Diode-Laser Pumped Circular Buried Depressed-Cladding Waveguides Inscribed in Nd:YAG by Direct Femtosecond-Laser Writing," *IEEE Photonics Journal* **8**(1), art. 1500209 (2016).
66. N. Pavel, T. Dascalu, G. Salamu, M. Dinca, N. Boicea, and A. Birtas, "Ignition of an automobile engine by high-peak power Nd:YAG/Cr<sup>4+</sup>:YAG laser-spark devices," *Opt. Express* **23**(26), 33028-33037 (2015).
65. T. Dascalu, G. Salamu, O. Sandu, M. Dinca, and N. Pavel, "Scaling and passively Q-switch operation of a Nd:YAG laser pumped laterally through a YAG prism," *Opt. & Laser Techn.* **67**, 164-168 (2015).
64. N. Pavel, G. Salamu, F. Jipa, and M. Zamfirescu, "Diode-laser pumping into the emitting level for efficient lasing of depressed cladding waveguides realized in Nd:YVO<sub>4</sub> by the direct femtosecond-laser writing technique," *Opt. Express* **22** (19), 23057-23065 (2014).
63. N. Pavel, G. Salamu, F. Voicu, F. Jipa, and M. Zamfirescu, "Cladding waveguides realized in Nd:YAG laser media by direct writing with a femtosecond-laser beam," *Proceedings of the Romanian Academy Series A - Mathematics Physics Technical Sciences Information Science* **15** (2), 151-158 (2014).
62. G. Salamu, F. Jipa, M. Zamfirescu, and N. Pavel, "Cladding waveguides realized in Nd:YAG ceramic by direct femtosecond-laser writing with a helical movement technique," *Opt. Mater. Express* **4** (4), 790-797 (2014).
61. V. Lupei, N. Pavel, and A. Lupei, "Improved laser efficiency by direct diode laser pumping of the radiation-resistant Nd:Gadolinium-Scandium-Gallium Garnet," *Laser Physics* **24**(4), 045801 (2014).
60. G. Salamu, F. Jipa, M. Zamfirescu, and N. Pavel, "Laser emission from diode-pumped Nd:YAG ceramic waveguide lasers realized by direct femtosecond-laser writing technique," *Opt. Express* **22** (5), 5177-5182 (2014).
59. G. Salamu, F. Voicu, N. Pavel, T. Dascalu, F. Jipa, and M. Zamfirescu, "Laser emission in diode-pumped Nd:YAG single-crystal waveguides realized by direct femtosecond-laser writing technique," *Rom. Reports in Physics* **65** (3), 943-953 (2013).
58. N. Pavel, G. Salamu, F. Voicu, F. Jipa, M. Zamfirescu, and T. Dascalu, "Efficient laser emission in diode-pumped Nd:YAG buried waveguides realized by direct femtosecond-laser writing," *Laser Physics Letters* **10** (9), 095802 (2013).
57. T. Dascalu, G. Salamu, O. Sandu, F. Voicu, and N. Pavel, "Novel laterally pumped by prism laser configuration for compact solid-state lasers," *Laser Physics Letters* **10** (5), 05580 (2013).
56. G. Salamu, E. Osiac, C. Dascalu, N. Pavel, and T. Dascalu, "Simultaneous Dual-Wavelength Operation at 1.06 and 1.34  $\mu\text{m}$  in Nd-vanadate Laser Crystals," *Laser Physics* **22** (5), 866-871 (2012).
55. O. Sandu, G. Salamu, N. Pavel, T. Dascalu, D. Chuchumishev, A. Gaydardzhiev, and I. Buchvarov, "High-peak power, passively Q-switched, composite, all-poly-crystalline ceramics Nd:YAG/Cr<sup>4+</sup>:YAG lasers," *Quantum Electronics* **42** (3), 211-215 (2012).

54. G. Salamu, A. Ionescu, C. A. Brandus, O. Sandu, N. Pavel, and T. Dascalu, "High-Peak Power, Passively Q-switched, Composite, All-Poly-Crystalline Ceramics Nd:YAG/Cr<sup>4+</sup>:YAG Laser and Generation of 532-nm Green Light," *Laser Physics* **22** (1), 68-73 (2012).
53. G. Salamu, O. Sandu, F. Voicu, M. Dejanu, D. Popa, S. Parlac, C. Ticos, N. Pavel, and T. Dascalu, "Study of Flame Development in 12% Methane-Air Mixture Ignited by Laser," *Optoelectronics and Advanced Materials - Rapid Communications* **5** (11), 1166-1169 (2011).
52. N. Pavel, M. Tsunekane, and T. Taira, "Composite, all-ceramics, high-peak power Nd:YAG/Cr<sup>4+</sup>:YAG monolithic micro-laser with multiple-beam output for engine ignition," *Optics Express* **19** (10), 9378-9384 (2011).
51. N. Pavel, "Comment on the paper: Q-switched Tm:YAG Laser Intracavity-Pumped by a 1064 nm Laser," *Chinese Physics Letters* **27** (7), 079901 (2010).
50. N. Pavel, M. Tsunekane, T. Taira, "Enhancing performances of a passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG microlaser with a volume Bragg grating output coupler," *Optics Letters* **35** (10), 1617-1619 (2010).
49. N. Pavel, "Simultaneous dual-wavelength emission at 0.9 and 1.06  $\mu\text{m}$  in Nd-based laser crystals," *Laser Physics* **20** (1), 215-221 (2010).
48. N. Pavel, T. Dascalu, G. Salamu, O. Sandu, A. Leca, and V. Lupei, "Q-switched Nd lasers pumped directly into the  $^4F_{3/2}$  emitting level," *Opt. Commun.* **282** (24), 4749-4754 (2009).
47. T. Dascalu and N. Pavel, "High-temperature operation of a diode-pumped passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG laser," *Laser Physics* **19** (11), 2090-2095 (2009).
46. N. Pavel, T. Dascalu, N. Vasile, and V. Lupei, "Efficient 1.34- $\mu\text{m}$  laser emission of Nd-doped vanadates under in-band pumping with diode lasers," *Laser Phys. Lett.* **6** (1), 38-43 (2009).
45. N. Pavel, "In-band pumping of Nd-based solid-state lasers," *Rom. Reports in Physics* **60** (4), 995-1012 (2008).
44. N. Pavel, C. Kränkel, R. Peters, K. Petermann, and G. Huber, "In-band pumping of Nd-vanadate thin-disk lasers," *Appl. Phys. B* **91** (3-4), 415-419 (2008).
43. N. Pavel, K. Lünstedt, K. Petermann, and G. Huber, "Multipass pumped Nd-based thin-disk lasers: continuous-wave laser operation at 1.06 and 0.9  $\mu\text{m}$  with intracavity frequency doubling," *Appl. Opt.* **46** (34), 8256-8263 (2007).
42. K. Lünstedt, N. Pavel, K. Petermann, and G. Huber, "Continuous-wave simultaneous dual-wavelength operation at 912 nm and 1063 nm in Nd:GdVO<sub>4</sub>," *Appl. Phys. B* **86** (1), 65-70 (2007).
41. A. Richter, N. Pavel, E. Heumann, G. Huber, D. Parisi, A. Toncelli, M. Tonelli, A. Diening, and W. Seelert, "Continuous-wave ultraviolet generation at 320 nm by intracavity frequency doubling of red-emitting Praseodymium lasers," *Opt. Express* **14** (8), 3282-3287 (2006).
40. N. Pavel and T. Taira, "Continuous-wave high-power multi-pass pumped thin-disc Nd:GdVO<sub>4</sub> laser," *Opt. Commun.* **260** (1), 271-276 (2006).
39. N. Pavel, V. Lupei, J. Saikawa, T. Taira, and H. Kan, "Neodymium concentration dependence of 0.94, 1.06 and 1.34  $\mu\text{m}$  laser emission and of heating effects under 809 and 885-nm diode laser pumping of Nd:YAG," *Appl. Phys. B* **82** (04), 599-605 (2006).
38. N. Pavel, V. Lupei, and T. Taira, "1.34- $\mu\text{m}$  efficient laser emission in highly-doped Nd:YAG under 885-nm diode pumping," *Opt. Express* **13** (20), 7948-7953 (2005).
37. N. Pavel and T. Taira, "High-power continuous-wave intracavity frequency-doubled Nd:GdVO<sub>4</sub>-LBO laser under diode pumping into the emitting level," *IEEE J. Sel. Top. Quantum Electron.* **11** (3), 631-637 (2005).
36. K. Mizuuchi, A. Morikawa, T. Sugita, K. Yamamoto, N. Pavel, and T. Taira, "Continuous-wave deep blue generation in a periodically poled MgO:LiNbO<sub>3</sub> crystal by single-pass frequency doubling of a 912-nm Nd:GdVO<sub>4</sub> laser," *Jap. Journ. Appl. Phys. (Express Letters)* **43** (No. 10A), L1293-L1295 (2004).
35. K. Mizuuchi, A. Morikawa, T. Sugita, K. Yamamoto, N. Pavel, and T. Taira, "Continuous-wave ultraviolet generation at 354-nm in a periodically poled MgO:LiNbO<sub>3</sub> by frequency tripling of a diode end-pumped Nd:GdVO<sub>4</sub> microlaser," *Appl. Phys. Lett.* **85** (18), 3959-3961 (2004).

34. N. Pavel, I. Shoji, and T. Taira, "Continuous-wave high-power Nd:YAG-KNbO<sub>3</sub> laser at 473 nm," *Opt. & Laser Techn.* **36** (7), 581-585 (2004).
33. N. Pavel, I. Shoji, T. Taira, K. Mizuuchi, A. Morikawa, T. Sugita, and K. Yamamoto, "Room temperature, continuous wave 1-W green power by single-pass frequency-doubling in a bulk periodically poled MgO:LiNbO<sub>3</sub>," *Opt. Lett.* **29** (8), 830-832 (2004).
32. T. Dascalu, N. Pavel, and T. Taira, "90 W continuous wave diode edge-pumped microchip composite Yb:Y<sub>3</sub>Al<sub>5</sub>O<sub>12</sub> laser," *Appl. Phys. Lett.* **83** (20), 4086-4088 (2003).
31. V. Lupei, N. Pavel, Y. Sato, and T. Taira, "Highly efficient 1063-nm continuous-wave laser emission in Nd:GdVO<sub>4</sub>," *Opt. Lett.* **28** (23), 2366-2368 (2003).
30. K. Mizuuchi, A. Morikawa, T. Sugita, K. Yamamoto, N. Pavel, I. Shoji and T. Taira, "High-power continuous wave green generation by single-pass frequency doubling of a Nd:GdVO<sub>4</sub> laser in a periodically poled MgO:LiNbO<sub>3</sub> operating at room temperature," *Jap. Journ. Appl. Phys. (Express Letters)* **42** (Part 2, No. 11A), L1296-L1298 (2003).
29. M. Iwai, T. Yoshino, S. Yamaguchi, M. Imaeda, N. Pavel, I. Shoji, T. Taira, "High power blue generation from a periodically poled MgO:LiNbO<sub>3</sub> ridge-type waveguide by frequency-doubling of a diode end-pumped Nd:Y<sub>3</sub>Al<sub>5</sub>O<sub>12</sub> laser," *Appl. Phys. Lett.* **83** (18), 3659-3661 (2003).
28. V. Lupei, N. Pavel, and T. Taira, "Basic enhancement of the overall optical efficiency of intracavity frequency-doubling devices for the one-micron continuous-wave Nd:Y<sub>3</sub>Al<sub>5</sub>O<sub>12</sub> laser emission," *Appl. Phys. Lett.* **83** (18), 3653-3655 (2003).
27. Y. Sato, T. Taira, N. Pavel, and V. Lupei, "Laser operation with near quantum-defect slope efficiency in Nd:YVO<sub>4</sub> under direct pumping into the emitting level," *Appl. Phys. Lett.* **82** (6), 844-846 (2003).
26. T. Dascalu, T. Taira, and N. Pavel, "100-W quasi-continuously-wave diode radial pumped microchip composite Yb:YAG laser," *Opt. Lett.* **27** (20), 1791-1793 (2002).
25. V. Lupei, N. Pavel, and T. Taira, "Highly efficient continuous-wave 946-nm Nd:YAG laser emission under direct 885-nm pumping," *Appl. Phys. Lett.* **81** (15), 2677-2679 (2002).
24. T. Dascalu, T. Taira, and N. Pavel, "Diode edge-pumped microchip composite Yb:YAG laser," *Jap. Journ. Appl. Phys. (Express Letters)* **41** (part 2, no. 6A), L606-L608 (2002).
23. V. Lupei, N. Pavel, and T. Taira, "1064-nm laser emission of highly doped Nd:Yttrium aluminum garnet under 885-nm diode laser pumping," *Appl. Phys. Lett.* **80** (23), 4309-4311 (2002).
22. V. Lupei, N. Pavel, and T. Taira, "Efficient laser emission in concentrated Nd laser materials under pumping into the emitting level," *IEEE J. Quantum Electron.* **38** (3), 240-245 (2002).
21. V. Lupei, N. Pavel, and T. Taira, "Highly efficient laser emission in concentrated Nd:YVO<sub>4</sub> components under direct pumping into the emitting level," *Opt. Commun.* **201** (4-6), 431-435 (2002).
20. V. Lupei, A. Lupei, N. Pavel, T. Taira, and A. Ikesue "Comparative investigation of spectroscopic and laser emission characteristics under direct 885-nm pump of concentrated Nd:YAG ceramics and crystals," *Appl. Phys. B* **73**, 757-762 (2001).
19. V. Lupei, N. Pavel, and T. Taira, "Laser emission in highly-doped Nd:YAG crystals under <sup>4</sup>F<sub>5/2</sub> and <sup>4</sup>F<sub>3/2</sub> pump," *Opt. Lett.* **26** (21), 1678-1680 (2001).
18. V. Lupei, T. Taira, A. Lupei, N. Pavel, I. Shoji, and A. Ikesue, "Laser emission under resonant pump in the emitting level of concentrated Nd:YAG ceramics," *Appl. Phys. Lett.* **79** (5), 590-592 (2001).
17. N. Pavel, J. Saikawa, and T. Taira, "Diode end-pumped passively Q-switched Nd: YAG laser intra-cavity frequency doubled by LBO crystal," *Opt. Commun.* **195** (1-4), 233-240 (2001).
16. V. Lupei, T. Taira, A. Lupei, N. Pavel, I. Shoji, and A. Ikesue, "Spectroscopy and laser emission under hot band resonant pump in highly doped Nd:YAG ceramics," *Opt. Commun.* **195** (1-4), 225-232 (2001).

15. N. Pavel, J. Saikawa, S. Kurimura, and T. Taira, "High Average Power Diode End-Pumped Composite Nd:YAG Laser Passively Q-switched by Cr<sup>4+</sup>:YAG Saturable Absorber," *Jap. Journ. Appl. Phys.* **40** (3A), 1253-1259 (2001).
14. N. Pavel, J. Saikawa, T. Taira, "Radial-Pumped Microchip High-Power Composite Yb:YAG Laser: Design and Power Characteristics," *Jap. Journ. Appl. Phys.* **40** (Part 1, No. 1), 146-152 (2001).
13. Y. Hirano, N. Pavel, S. Yamamoto, Y. Koyata, and T. Tajime, "100-W, 100-h external green generation with Nd:YAG rod master-oscillator power-amplifier system," *Opt. Commun.* **184** (1-4), 231-236 (2000).
12. N. Pavel, Y. Hirano, S. Yamamoto, Y. Koyata, and T. Tajime, "Improved pump-beam distribution in a diode side-pumped solid-state laser with a highly-diffused, cross-axis beam delivery system," *Appl. Opt.* **39** (6), 986-992 (2000).
11. Y. Hirano, N. Pavel, S. Yamamoto, Y. Koyata, and T. Tajime, "100-W class diode-pumped Nd:YAG MOPA system with a double-stage relay-optics scheme," *Opt. Commun.* **170** (4-6), 275-280 (1999).
10. N. Pavel and T. Taira, "Pump-Beam M<sup>2</sup> Factor Approximation for Design of Diode Fiber-Coupled End-Pumped Lasers," *Opt. Engineering* **38** (11), 1806-1813 (1999).
9. N. Pavel, T. Taira, and M. Furuhashi, "High-efficiency longitudinally-pumped miniature Nd:YVO<sub>4</sub> laser," *Opt. & Laser Techn.* **30** (5), 275-280 (1998).
8. N. Pavel, T. Dascalu, and V. Lupei, "Positive-branch unstable resonators with thermal lens compensation," *Opt. & Laser Techn.* **28** (6), 451-457 (1996).
7. T. Dascalu, G. Philipps, H. Weber, N. Pavel, T. Beck, and V. Lupei, "Investigation on Nd:YAG laser, passive Q-switch, externally controlled, quasi-continuous or continuous pumped," *Opt. Engineering* **35** (5), 1247-1252 (1996).
6. N. Pavel, T. Dascalu, and V. Lupei, "Stable resonators for fundamental mode operation," *Opt. Engineering* **35** (5), 1239-1247 (1996).
5. N. Pavel, T. Dascalu, and V. Lupei, "Variable reflectivity mirror unstable resonator with deformable mirror thermal compensation," *Opt. Commun.* **123** (1-3), 115-120 (1996).
4. T. Dascalu, V. Lupei, N. Pavel, and C. Neagu, "Investigation of welding depth with overlapping laser pulses," *Journal de Physique IV* **4**, 179-182, (1994).
3. T. Dascalu, V. Lupei, and N. Pavel, "A new laser regime for high energy Nd:YAG lasers," *Journal de Physique IV* **4**, 171-174, (1994).
2. T. Dascalu, N. Pavel, and V. Lupei, "Optical resonators for long pulse Nd:YAG laser with thermal effects," *Journal de Physique IV* **4**, 73-76 (1994).
1. V. Ionita-Manzatu, N. Pavel, and V. Lupei, "Solid-state lasers with thermal induced lens in the dynamical stability zones," *St. Cerc. Fiz.* **44** (2), 139-150 (1992), Bucharest-Romania.

## **B. PROCEEDINGS OF INTERNATIONAL CONFERENCES**

(Presentations at International Meetings published in extended version)

- 52/C131. [N. Pavel](#), G. Croitoru, O.-V. Grigore, N.-T. Vasile, T. Dascalu, A. Birtas, N. Boicea, M. Dinca, F. Draghici, and R. Chiriac, "Laser spark-plug development: from experimental device to successful engine ignition," Proc. SPIE **12170**, Advances in 3OM: Opto-Mechatronics, Opto-Mechanics, and Optical Metrology, 121700M (5 May 2022); <https://doi.org/10.1117/12.2620045>
- 51/C122. A. Birtas, N. Boicea, G. Croitoru, M. Dinca, [N. Pavel](#), F. Draghici, R. Chiriac, "On the possibility to improve petrol engine operation by laser ignition," Energy Procedia **157**, 1022-1028 (2019); Proceeding paper, Technologies and Materials for Renewable Energy, Environment and Sustainability (TMREES), TMREES18, 19-21 Sept. 2018, Athens, Greece. <https://doi.org/10.1016/j.egypro.2018.11.269>
- 50/C116. A. Birtas, N. Boicea, F. Draghici, R. Chiriac, G. Croitoru, M. Dinca, T. Dascalu and [N. Pavel](#), "On the assessment of performance and emissions characteristics of a SI engine provided with a laser ignition system," IOP Conf. Ser.: Mater. Sci. Eng. **252**, art. 012071 (2017); doi:10.1088/1757-899X/252/1/012071
49. C.-A. Stanciu, T. Dascalu, G. Stanciu, [N. Pavel](#), "Transparent Nd doped YAG ceramics," Journal of Physics: Conference Series **741**(1), art. 012074 (2016); 3rd International School and Conference on Optoelectronics, Photonics, Engineering and Nanostructures (Saint Petersburg OPEN 2016), 28-30 March 2016, St Petersburg, Russia; doi:10.1088/1742-6596/741/1/012074
- 48/C89. G. Salamu, F. Voicu, F. Jipa, M. Zamfirescu, T. Dascalu, and [N. Pavel](#), "Laser emission from diode-pumped Nd:YAG cladding waveguides obtained by direct writing with a femtosecond-laser beam," Proc. SPIE **9135**, Laser Sources and Applications II, 91351F (May 1, 2014); doi:10.1117/12.2052250; <http://dx.doi.org/10.1117/12.2052250>
- 47/C80. G. Salamu, A. Ionescu, C. Brandus, O. Grigore, [N. Pavel](#) and T. Dascalu, "Generation of high-peak power 532-nm green pulses from composite, all-ceramics, passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG laser," Proc. SPIE **8882**, ROMOPTO 2012: Tenth Conference on Optics: Micro- to Nanophotonics III, 888206 (June 10, 2013); doi:10.1117/12.2032267; <http://dx.doi.org/10.1117/12.2032267>
46. M. Tsunekane, [N. Pavel](#), and T. Taira, "Simultaneously 3-Point Ignitable, Nd:YAG/Cr:YAG Ceramic Micro-Lasers," The Review of Laser Engineering **41** (2), 117-122 (2013) (in Japanese).
45. [Nicolaie Pavel](#), Masaki Tsunekane and Takunori Taira (2011). All-Poly-Crystalline Ceramics Nd:YAG/Cr<sup>4+</sup>:YAG Monolithic Micro-Lasers with Multiple-Beam Output, Laser Systems for Applications, Dr Krzysztof Jakubczak (Ed.), ISBN: 978-953-307-429-0, InTech, DOI: 10.5772/24071. Available from: <https://www.intechopen.com/chapters/24810>
44. [N. Pavel](#), M. Tsunekane, and T. Taira, "High Peak-Power Passively Q-switched All-Ceramics Nd:YAG/Cr<sup>4+</sup>:YAG Lasers," Proceedings SPIE **7469**, Micro- to Nano-Photonics II - ROMOPTO 2009 Conference, August 31 - Sept. 03, 2009, Sibiu, Romania; paper 746903 (2010).
43. T. Dascalu, O. Sandu, N. Vasile, A. Leca, [N. Pavel](#), and T. Taira, "End-Pumped Yb:KGW Laser Mode-Locked by Saturable Absorber Mirror," Proceedings of International Conference "MODERN LASER APPLICATIONS", INDLAS, Second Edition 2008, May 20-23, 2008, Bran, Romania; J. of Optoelectron. & Adv. Mat. (JOAM) - Symposia, Vol. 1, No. 4, 658-661 (2009).
42. [N. Pavel](#), N. Vasile, A. Leca, and T. Dascalu, "Diode-Pumped Nd-based Lasers for Generation of Visible Radiations," Proceedings of International Conference "MODERN LASER APPLICATIONS", INDLAS, Second Edition 2008, May 20-23, 2008, Bran, Romania; J. of Optoelectron. & Adv. Mat. (JOAM) - Symposia, Vol. 1, No. 4, 673-676 (2009).
41. N. Vasile, A. Leca, [N. Pavel](#), and T. Dascalu, "A Diode-Pumped Acoustooptic Q-switched Nd:YAG Laser for Marking Applications," Proceedings of International Conference "MODERN LASER APPLICATIONS", INDLAS, Second Edition 2008, May 20-23, 2008, Bran, Romania; J. of Optoelectron. & Adv. Mat. (JOAM) - Symposia, Vol. 1, No. 4, 677-680 (2009).

40. [N. Pavel](#) and V. Lupei, "High-power continuous wave Nd lasers under diode pumping directly in the  $4F_{3/2}$  emitting level," Proc. SPIE, vol. **7007**, 700705 (2008), The First International Conference on Industrial Applications of Lasers, INDLAS 2007, May 23-25, 2007, Bran, Romania.
39. C. Petre, N. Vasile, [N. Pavel](#), and T. Dascalu, "Continuous-wave diode end-pumped Nd:YAG and Nd:GdVO<sub>4</sub> lasers passively Q-switched by Cr<sup>4+</sup>:YAG. Comparative study for industrial applications," Proc. SPIE, vol. **7007**, 70070P (2008), The First International Conference on Industrial Applications of Lasers, INDLAS 2007, May 23-25, Bran, Romania.
38. [N. Pavel](#), K. Lünstedt, K. Petermann, and G. Huber, "Diode pumped Neodymium-based thin disk lasers," Proc. SPIE, vol. **6785**, 678504 (2007), ROMOPTO '06: Eight Conference on Optics, 28-31 August, Sibiu, Romania.
37. V. Lupei and [N. Pavel](#), "Highly efficient one-micron laser emission under 885-nm diode laser pumping in Nd:YAG crystals with an extended range of concentrations," Proc. SPIE, vol. **6190**, 619002 (2006), Solid State Lasers and Amplifiers II, Eds. A. Sennaroglu, J.G. Fujimoto, J.A.C. Terry.
- 36/C41 [N. Pavel](#), T. Taira, K. Mizuuchi, A. Morikawa, T. Sugita, and K. Yamamoto, "Continuous-wave 456-nm blue light generation in a bulk periodically poled MgO:LiNbO<sub>3</sub> crystal," Trends in Optics and Photonics Series, Eds. I. Sorokina and C. Denman, (OSA, Washington DC), vol. **98**, 468-472 (2005).
- 35/C40 [N. Pavel](#), Y. Sato, T. Taira, Y. Tamaoki, and H. Kan, "Generation of 5 W continuous-wave green power at 531 nm based on a frequency-doubled Nd:GdVO<sub>4</sub> micro-laser pumped into the emitting level at 879 nm," Trends in Optics and Photonics Series, Eds. I. Sorokina and C. Denman, (OSA, Washington DC), vol. **98**, 462-467 (2005).
- 34/C33 Y. Sato, [N. Pavel](#), and T. Taira, "Near quantum limit laser oscillation and spectroscopic properties of Nd:GdVO<sub>4</sub> single crystal," Trends in Optics and Photonics Series, Ed. Gregory J. Quarles, (OSA, Washington DC), vol. **94**, 405-409 (2004).
- 33/C32 T. Dascalu, [N. Pavel](#), M. Tsunekane, and T. Taira, "Continuous-wave 90-W output power diode edge-pumped microchip composite Yb:YAG laser," Trends in Optics and Photonics Series, Ed. G.J. Quarles, (OSA, Washington DC), vol. **94**, 245-250 (2004).
- 32/C31 [N. Pavel](#), I. Shoji, T. Taira, K. Mizuuchi, A. Morikawa, T. Sugita, and K. Yamamoto, "High-power green generation at room temperature in a periodically poled MgO:LiNbO<sub>3</sub> by frequency doubling of a diode end-pumped Nd:GdVO<sub>4</sub> laser," Trends in Optics and Photonics Series, Ed. G.J. Quarles, (OSA, Washington DC), vol. **94**, 196-202 (2004).
31. V. Lupei, [N. Pavel](#), and T. Taira, "Direct-pumping effects on the global efficiency of frequency-doubling devices for cw Nd lasers," Proceedings SPIE **5581**, ROMOPTO 2003: Seventh Conference on Optics, Ed. V.I. Vlad, Constanta, Romania, September 2003, 232-237 (2004).
30. T. Dascalu, [N. Pavel](#), and T. Taira, "Diode Radial Pumped Composite Microchip Yb:YAG Laser: Output Performances and Thermal Effects," Proceedings SPIE **5581**, ROMOPTO 2003: Seventh Conference on Optics, Ed. V.I. Vlad, Constanta, Romania, September 2003, 128-134 (2004).
29. V. Lupei, A. Lupei, [N. Pavel](#), T. Taira, Y. Sato, and A. Ikesue, "Comparison of Nd:YAG single crystals and transparent ceramics as laser materials," Proceedings SPIE **5581**, ROMOPTO 2003: Seventh Conference on Optics, Ed. V.I. Vlad, Constanta, Romania, September 2003, 212-219 (2004).
28. V. Lupei, [N. Pavel](#), and T. Taira, "Efficient quasi-three-level laser emission of Nd:YAG," Proceedings SPIE **5581**, ROMOPTO 2003: ROMOPTO 2003: Seventh Conference on Optics, Ed. V.I. Vlad, Constanta, Romania, September 2003, 195-200 (2004).
27. [N. Pavel](#), J. Saikawa, I. Shoji, T. Dascalu, V. Lupei, and T. Taira, "All-solid-state diode end-pumped Nd:YAG laser passively Q-switched by Cr<sup>4+</sup>:YAG saturable absorber," Proc. SPIE **5581**, ROMOPTO 2003: Seventh Conference on Optics, Ed. V.I. Vlad, Constanta, Romania, Sept. 2003, 170-179 (2004).
26. [N. Pavel](#), Y. Sato, V. Lupei, and T. Taira, "Highly efficient laser operation of Nd-vanadates under 880-nm direct pumping into the emitting level," Proceedings SPIE **5581**, ROMOPTO 2003: Seventh Conference on Optics, Ed. V.I. Vlad, Constanta, Romania, September 2003, 135-142 (2004).



25. [N. Pavel](#), I. Shoji, and T. Taira, "Continuous-wave intracavity frequency-doubled Nd:YAG-KNbO<sub>3</sub> blue laser at 473 nm," *Proceedings SPIE* **5581**, ROMOPTO 2003: Seventh Conference on Optics, Ed. V.I. Vlad, Constanta, Romania, September 2003, 123-127 (2004).
- 24/C23 [Y. Sato](#), [N. Pavel](#), T. Taira, and V. Lupei, "Near quantum-defect slope efficiency laser operation in Nd:YVO<sub>4</sub> under direct pumping into the emitting level," *Trends in Optics and Photonics Series*, Ed. J.J. Zayhowski, (OSA, Washington DC), vol. **83**, 46-50 (2003).
- 23/C22 T. Dascalu, [N. Pavel](#), T. Taira, "Diode radial pumped microchip Yb:YAG laser: High power operation," *Trends in Optics and Photonics Series*, Ed. J.J. Zayhowski, (OSA, Washington DC), vol. **83**, 231-234 (2003).
- 22/C21 [N. Pavel](#), I. Shoji, T. Taira, M. Iwai, T. Yoshino, M. Imaeda, "High-power blue generation in a periodically poled MgO:LiNbO<sub>3</sub> ridge-type waveguide by frequency doubling of a diode end-pumped Nd:YAG laser," *Trends in Optics and Photonics Series*, Ed. J.J. Zayhowski (OSA, Washington DC), vol. **83**, 388-392 (2003).
21. T. Dascalu, [N. Pavel](#), T. Taira, "Quasi-CW Diode Radial Pumped Composite Yb:YAG Microchip Laser," *Proceedings of LASERS 2001 Conference*, Tucson, Arizona, USA, December 2001, 49-55.
- 20/C10 [N. Pavel](#), J. Saikawa, and T. Taira, "Intra-cavity frequency doubling of a diode-pumped Nd:YAG laser passively Q-switched by Cr<sup>4+</sup>:YAG saturable absorber," *Trends in Optics and Photonics Series*, Ed. C. Marshall, (OSA, Washington DC), vol. **50**, 246-252 (2001).
19. [N. Pavel](#), J. Saikawa, S. Kurimura, and T. Taira, "CW Edge-Diode-Pumped Composite Yb:YAG Laser," *Proceedings of LASERS 2000 Conference*, Albuquerque, New Mexico, USA, December 2000, 790-795 (2001).
18. T. Dascalu, C. Dascalu, and [N. Pavel](#), "Nd:YAG laser continuous wave pumped, Q-switched by hybrid "passive-active" methods," *Proc. SPIE* **4430**, ROMOPTO 2000: Sixth Conference on Optics, Ed. V.I. Vlad, Bucharest, Romania, September 2000, 52-61 (2001).
17. [N. Pavel](#), J. Saikawa, S. Kurimura, and T. Taira, "Diode Side-Pumped Microchip Composite Yb:YAG Laser: Design and Power Scaling," *Proceedings SPIE* **4430**, ROMOPTO 2000: Sixth Conference on Optics, Ed. V.I. Vlad, Bucharest, Romania, September 2000, 27-34 (2001).
16. J. Saikawa, S. Kurimura, [N. Pavel](#), I. Shoji, and T. Taira, "Performance of widely tunable Yb:YAG microchip lasers," *Trends in Optics and Photonics Series*, Eds. H. Ingeyan, U. Keller, and C. Marshall, (OSA, Washington DC), vol. **34**, 106-111 (2000).
15. Y. Hirano, S. Yamamoto, Y. Koyata, [N. Pavel](#), and T. Tajime, "100-W Green Average Power from a Diode-Pumped Nd:YAG MOPA System: Design and Operation," *Proceedings of LASERS '99 Conference*, Quebec, Canada, December 1999, 400-406.
14. [N. Pavel](#), Y. Hirano, S. Yamamoto, Y. Koyata, and T. Tajime, "Uniform Diode-Pumping by a Highly-Diffused with Cross-Axis Beam Delivery Side-Pumping System. The HiDiCAD Cavity," *Proceedings of LASERS '99 Conference*, Quebec, Canada, December 1999, 384-390.
13. S. Yamamoto, S. Koyata, [N. Pavel](#), and Y. Hirano, "Long-time operation of a 100 W green average power two-rod double-pass Nd:YAG MOPA system," *Proceedings SPIE* **3889**, *Advanced High-Power Lasers*, Eds. M. Osinski, H.T. Powell, and K. Toyoda, Osaka, Japan, November 1999, 279-287.
- 12/C8 [N. Pavel](#), S. Kurimura, and T. Taira, "Design Criteria for Optimization of Fiber-Coupled Diode Longitudinally-Pumped Lasers Using Pump-Beam M<sup>2</sup> Factor," *Trends in Optics and Photonics Series*, Eds. M. Fejer, H. Ingeyan, and U. Keller, (OSA, Washington DC), vol. **26**, 253-259 (1999).
- 11/C7 [N. Pavel](#), T. Dascalu, and T. Taira, "High-efficiency Nd:YAG laser designed by pump-beam M<sup>2</sup> factor method," *Proceedings of LASERS '98 Conference*, Tucson, Arizona, USA, December 1998, 1142-1149 (1999).
10. T. Dascalu, [N. Pavel](#), and M. Poterasu, "Optimized Resonators for High Energy Long-Pulse Nd:YAG Laser," *Optical Resonators - Science and Engineering*, Eds. R. Kossowski, M. Jelinek, and R.F. Walter, Kluwer Academic Publishers, 373-379 (1998).



9. T. Taira, N. Pavel, M. Furuhashi, M. Ohtaka, T. Kobayashi, H. Ito, "Design of longitudinally-pumped solid-state lasers by using  $M^2$  pump-beam factor," Trends in Optics and Photonics Series, Eds. W.R. Bosenberg and M. Feyer, (OSA, Washington DC), vol. **19**, 411-414 (1998).
8. N. Pavel, T. Taira, T. Dascalu, and V. Lupei, "Influence of active medium properties on high-power solid-state lasers beam characteristics," Proceedings SPIE **3405**, ROMOPTO '97: Fifth Conference on Optics, Eds. V.I. Vlad and D. Dumitras, Bucharest, Romania, September 1997, 70-74 (1998).
7. N. Pavel, T. Taira, M. Furuhashi, and T. Kobayashi, "Output beam characteristics of a Nd:YVO<sub>4</sub> miniature laser," Proc. SPIE **3405**, ROMOPTO '97: Fifth Conference on Optics, Eds. V.I. Vlad and D. Dumitras, Bucharest, Romania, September 1997, 32-38 (1998).
6. N. Pavel, T. Dascalu, V. Lupei, and M. Poterasu, "Two-rod VRM-unstable resonator with deformable mirror thermal compensation," High Power Lasers - Science and Eng., NATO ASI Series, Eds. R. Kossowski, M. Jelinek, and R.F. Walter, R.F., Kluwer Academic Publishers, 3. High Technology **7**, 293-302 (1996).
5. N. Pavel, T. Dascalu, V. Lupei, and H. Totia, "Variable reflectivity mirror unstable resonator thermal lens compensated by a deformable rear mirror," High Power Lasers - Science and Engineering, NATO ASI Series, Eds. R. Kossowski, M. Jelinek, and R.F. Walter, Kluwer Academic Publishers, 3. High Technology, **7**, 283-289 (1996).
4. T. Dascalu, M. Poterasu, N. Pavel, and A. Marian, "Thin layers removal by Nd:YAG laser," Proc. Of the 6th European Conference on Laser Treatment of Materials, Stuttgart, Germany, September 1996, 707-714.
3. N. Pavel, T. Dascalu, and V. Lupei, "Two rods VRM-unstable resonator versus single rod-unstable resonator with amplifier stage," Proc. SPIE **2772**: Laser Optics '95: Solid State Lasers, Eds. A.A. Mak and V.I. Ustugov, Moscow, Russia, 1995, 200-209 (1996).
2. T. Dascalu, V. Lupei, and N. Pavel, "Passive Q-Switched Nd:YAG laser quasi-continuously pumped," Proceedings SPIE **2206**: High-Power Gas and Solid State Lasers, Eds. M. Bohrer, T. Letardi, D. Schuoecker, and H. Weber, Vienna, Austria, August 1994, 534-541 (1994).
1. N. Pavel, T. Dascalu, R. Florescu, and V. Lupei, "Output beam characteristics of optical resonators with variable reflectivity mirrors," Balkan Physics Letters **2**, 264-268 (1994).

### **C. COMMUNICATIONS AT INTERNATIONAL CONFERENCES**

(Technical Digests, manuscripts up to 3 pages)

160. O. V. Grigore, G. Croitoru, G. Stanciu, N. Pavel, "Study of multi-point laser ignition of CH<sub>4</sub>/air and H<sub>2</sub>/air mixtures in a constant-volume combustion chamber," Tmrees24Fr International Conference on Technologies and Materials for Renewable Energy, Environment and Sustainability, Metz, France, July 8-10, 2024 (oral presentation, online).
159. G. Croitoru, F. Jipa, and N. Pavel, "Buried depressed-cladding waveguides realized in Nd:YAG ceramics with high-repetition rate picosecond-laser pulses," The 2nd International Conference on Laser, Plasma and Radiation - Science and Technology (ICLPR-ST), 16-21 June 2024, Danube Delta, Crişan, Romania (O3, oral presentation).
158. O. V. Grigore, G. Croitoru, G. Stanciu, A. Craciun, and N. Pavel, "Laser ignition of H<sub>2</sub>/air mixtures by a high-peak power passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG laser," The 2nd International Conference on Laser, Plasma and Radiation - Science and Technology (ICLPR-ST), 16-21 June 2024, Danube Delta, Crişan, Romania (O5, oral presentation).
157. L. Gheorghe, A. Broasca, M. Greculeasa, F. Voicu, S. Hau, C. Gheorghe, G. Stanciu, G. Croitoru, and N. Pavel, "Nd:LYSB as a new laser and nonlinear optical crystal grown by the Czochralski method," The 2nd International Conference on Laser, Plasma and Radiation - Science and Technology (ICLPR-ST), 16-21 June 2024, Danube Delta, Crişan, Romania (P2-O1, poster presentation).
156. A. Broasca, M. Greculeasa, F. Voicu, S. Hau, C. Gheorghe, G. Croitoru, N. Pavel, and L. Gheorghe, "LGYSB:Nd - a new laser crystal with enhanced performance for high-efficiency laser applications in the near-infrared region," The 2nd International Conference on Laser, Plasma and Radiation - Science and Technology (ICLPR-ST), 16-21 June 2024, Danube Delta, Crişan, Romania (P2-O2, poster presentation).
155. M. Greculeasa, A. Broasca, F. Voicu, C. Gheorghe, S. Hau, G. Stanciu, C.A. Brandus, N. Pavel, and L. Gheorghe, "Crystal growth and characterization of Nd:LGSB as bifunctional laser and nonlinear optical crystals," The 2nd International Conference on Laser, Plasma and Radiation - Science and Technology (ICLPR-ST), 16-21 June 2024, Danube Delta, Crişan, Romania (P2-O3, poster presentation).
154. G. Stanciu, F. Voicu, C. Tihon, A.M. Voiculescu, S. Hau, C. Gheorghe, G. Croitoru, L. Gheorghe, and N. Pavel, "Multilayered Y<sub>2</sub>O<sub>3</sub>/RE<sup>3+</sup>:Y<sub>2</sub>O<sub>3</sub> (RE= Nd, Yb) transparent ceramics: Fabrication process and laser performances," The 2nd International Conference on Laser, Plasma and Radiation - Science and Technology (ICLPR-ST), 16-21 June 2024, Danube Delta, Crişan, Romania (P2-O5, poster presentation).
153. O. V. Grigore, N. Pavel, "Pulse-burst mode laser ignition of H<sub>2</sub>/air mixtures by a single-beam passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG laser," The 10th Tiny Integrated Laser and Laser Ignition Conference 2024, 24-26 April 2024, Pacifico Yokohama, Yokohama, Japan, presentation TILA-LIC3-03 (oral presentation).
152. G. Croitoru, F. Jipa, N. Pavel, "Buried depressed-cladding waveguides inscribed in Nd:YAG ceramics by picosecond-laser beam writing," The 10th Tiny Integrated Laser and Laser Ignition Conference 2024, 24-26 April 2024, Pacifico Yokohama, Yokohama, Japan, presentation TILA-LICp-03 (poster presentation).
151. N. Pavel, O.-V. Grigore, G. Stanciu, G. Croitoru, "Characteristics of Laser Ignition in Methane/Air and Hydrogen/Air Mixtures in a Constant-Volume Combustion Chamber," 2<sup>nd</sup> International Conference Advances in 3OM: Opto-Mechatronics, Opto-Mechanics and Optical Metrology, 11-14 December 2023, Timisoara, Romania (paper OPT23-13, keynote presentation). Book of Abstracts, ISSN 2810-5249.
150. O. V. Grigore, N. Pavel, "Single-point, pulse-burst mode laser-induced ignition of hydrogen-air mixtures in a constant-volume combustion chamber by a passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG laser spark plug," Tmrees23Gr Technologies and Materials for Renewable Energy, Environment and Sustainability, Athens, Greece, November 27-29, 2023 (oral presentation, online).

149. G. Croitoru and N. Pavel, "Buried depressed-cladding waveguides lasers realized in Nd-doped laser media by direct writing with a fs-laser beam," Markus Pessa International Summer School "New Frontiers in Optical Technologies," 7 - 11 August 2023, Tampere University, Finland (poster presentation).
148. O.-V. Grigore, C. Dumitrache, G. Croitoru, and N. Pavel, "Aspects of CH<sub>4</sub>-air mixtures laser ignition by a multi-point, pulse-train passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG laser," Markus Pessa International Summer School "New Frontiers in Optical Technologies," 7 - 11 August 2023, Tampere University, Finland (poster presentation).
147. L. Gheorghe, A. Broasca, M. Greculeasa, F. Voicu, C. Gheorghe, S. Hau, G. Stanciu, C. A. Brandus, N. Pavel, "Czochralski-grown LGSB crystals as high-performance NIR laser crystals and SFD crystals in the VIS spectral range," International Conference on Crystal Growth and Epitaxy - ICCGE-20, 30 July - 04 August 2023, Naples, Italy (poster presentation PS 1 - P49).
146. G. Stanciu, F. Voicu, C. A. Brandus, C. E. Tihon, S. Hau, C. Gheorghe, G. Croitoru, L. Gheorghe, N. Pavel, "Rare-earths doped Y<sub>2</sub>O<sub>3</sub> laser materials," International Conference on Crystal Growth and Epitaxy - ICCGE-20, 30 July - 04 August 2023, Naples, Italy; (poster presentation PS 2 - P30).
145. A. Broasca, M. Greculeasa, F. Voicu, S. Hau, G. Stanciu, C. Gheorghe, G. Croitoru, N. Pavel, L. Gheorghe, "Growth and optical properties of Nd:LYSB as a new laser and nonlinear optical borate crystal," International Conference on Crystal Growth and Epitaxy - ICCGE-20, 30 July - 04 August 2023, Naples, Italy; (oral presentation Optical Crystals 4 - O3).
144. M. Greculeasa, A. Broasca, F. Voicu, G. Stanciu, S. Hau, C. Gheorghe, G. Croitoru, N. Pavel, L. Gheorghe, "Development of LYSB and Yb-doped LYSB crystals as new candidates for the next generation of nonlinear optical and/or laser crystals," International Conference on Crystal Growth and Epitaxy - ICCGE-, 30 July - 04 August 2023, Naples, Italy; (oral presentation Optical Crystals 6 - O4).
143. G. Croitoru, I. Anghel, F.-M. Voicu, M. Greculeasa, A. Broasca, L.-M. Gheorghe, N. Pavel, "Buried Depressed-Cladding Waveguides Fabricated in RE<sup>3+</sup>:CLNGG Laser Crystals using Direct Laser Writing Technique," 2023 Conference on Lasers and Electro-Optics/Europe - European Quantum Electronics Conferences (CLEO@/Europe-EQEC 2023), 26-30 June 2023, presentation CA-P.4 (poster presentation) ); doi: 10.1109/CLEO/Europe-EQEC57999.2023.10232516.
142. C. Dumitrache, G. Croitoru, N. Pavel, "Laser ignition of CH<sub>4</sub>-air mixtures by a four-beam passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG laser operating in burst mode," The 9th Tiny Integrated Laser and Laser Ignition Conference 2022, 19-21 April 2023, Pacifico Yokohama, Yokohama, Japan, presentation TILA-LIC2-02 (oral presentation).
141. L. M. Gheorghe, A. Broasca, M. Greculeasa, F. Voicu, G. Croitoru, S. Hau, C. Gheorghe, N. Pavel, "Yb- and Nd-doped La<sub>x</sub>Gd<sub>y</sub>Sc<sub>4-x-y</sub>(BO<sub>3</sub>)<sub>4</sub> (LGSB) as new high performance near-infrared laser crystals," The 9th Tiny Integrated Laser and Laser Ignition Conference 2022, 19-21 April 2023, Pacifico Yokohama, Yokohama, Japan, presentation TILA-LICp-01 (poster presentation).
140. G. Stanciu, F. Voicu, C. A. Brandus, C. E. Tihon, S. Hau, C. Gheorghe, G. Croitoru, L. M. Gheorghe, N. Pavel, "RE<sup>3+</sup>:Y<sub>2</sub>O<sub>3</sub> transparent ceramic media realized via a multi-step sintering method," The 9th Tiny Integrated Laser and Laser Ignition Conference 2022, 19-21 April 2023, Pacifico Yokohama, Yokohama, Japan, presentation TILA-LICp-02 (poster presentation).
139. G. Croitoru, I. Anghel, F. Voicu, M. Greculeasa, A. Broasca, L. M. Gheorghe, N. Pavel, "Waveguides realized in RE<sup>3+</sup>:CLNGG laser crystals by direct writing with a fs-laser beam," The 9th Tiny Integrated Laser and Laser Ignition Conference 2022, 19-21 April 2023, Pacifico Yokohama, Yokohama, Japan, presentation TILA-LICp-03 (poster presentation).
138. O. V. Grigore, A. Craciun, N. Pavel, "Thermal analysis of a passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG laser with multiple-beam output," The 9th Tiny Integrated Laser and Laser Ignition Conference 2022, 19-21 April 2023, Pacifico Yokohama, Yokohama, Japan, presentation TILA-LICp-05 (poster presentation).
137. N. T. Vasile, G. Croitoru, C. Dumitrache, and N. Pavel, "Multi-point, pulse-train laser ignition of methane-air mixtures by a high-peak power passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG compact laser," 10th EPS-QEOD

- EUROPHOTON Conference, 28 Aug. - 2 Sept. 2022, Hannover, Germany; presentation TUE-P-1.1. EPJ Web Conf. **267**, 01002 (2022), <https://doi.org/10.1051/epjconf/202226701002>
136. M. Greculeasa, A. Broasca, F. Voicu, G. Stanciu, S. Hau, C. Gheorghe, C.A. Brandus, N. Pavel, and L. Gheorghe, "Development of Czochralski-grown  $\text{La}_{0.733}\text{Nd}_{0.035}\text{Gd}_{0.452}\text{Sc}_{2.75}(\text{BO}_3)_4$  as a new bifunctional laser and nonlinear crystal," 10th EPS-QEOD EUROPHOTON Conference, 28 Aug. - 2 Sep. 2022, Hannover, Germany; presentation TUE-P-1.9.
  135. G. Stanciu, F. Voicu, C. A. Brandus, C. E. Tihon, S. Hau, C. Gheorghe, G. Croitoru, L. Gheorghe, N. Pavel, "Fabrication and laser performances of Nd- and Yb-doped  $\text{Y}_3\text{Al}_5\text{O}_{12}$  transparent ceramics," International Conference on Laser, Plasma and Radiation - Science and Technology, June 7-10, 2022 Bucharest, Romania; poster presentation P2-06.
  134. M. Greculeasa, A. Broasca, F. Voicu, G. Stanciu, S. Hau, C. Gheorghe, C.A. Brandus, N. Pavel, M. Enculescu, L. Gheorghe, "Crystal Growth and Characterization of  $\text{La}_{0.733}\text{Nd}_{0.035}\text{Gd}_{0.452}\text{Sc}_{2.78}(\text{BO}_3)_4$  as a New Bifunctional Laser and Nonlinear Optical Crystal," International Conference on Laser, Plasma and Radiation - Science and Technology, June 7-10, 2022 Bucharest, Romania; poster presentation P2-05.
  133. O. Grigore, A. Craciun, N. Pavel, T. Dascalu, "Vector vortex beams generated by polarization conversion in uniaxial crystals," International Conference on Laser, Plasma and Radiation - Science and Technology, June 7-10, 2022 Bucharest, Romania; poster presentation P1-06.
  132. N. T. Vasile, G. Croitoru, N. Pavel, "Multi-point, burst pulse-train laser ignition of methane-air mixtures by a high-peak power passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG multi-beam laser", The 8th Tiny Integrated Laser and Laser Ignition Conference 2022, 20-22 April 2022, Pacifico Yokohama, Yokohama, Japan, presentation LIC2-03 (oral presentation).
  - B52/131. N. Pavel, G. Croitoru, O.-V. Grigore, N.-T. Vasile, T. Dascalu, A. Birtas, N. Boicea, M. Dinca, F. Draghici, R. Chiriac, "Laser Spark-Plug Development - From Experimental Device to Successfully Engine Ignition," 1<sup>st</sup> International Conference Advances in 3OM: Opto-Mechatronics, Opto-Mechanics and Optical Metrology, 13-16 December 2021, Timisoara, Romania; paper 3OM100-55 (keynote presentation).
  130. A. Broasca, M. Greculeasa, F. Voicu, G. Stanciu, S. Hau, C. Gheorghe, G. Croitoru, N. Pavel, L. Gheorghe, "LYSB and Yb-Doped LYSB crystals: Czochralski growth, optical characterization and laser emission performances," OSA Laser Congress Virtual Event, 03 Oct. - 07 Oct. 2021; oral presentation AT1A.6.
  129. O.-V. Grigore, A. Craciun, N. Pavel, T. Dascalu, "Exploring the topological charge and shape of an optical vortex generated with wavelength-detuned spiral phase plates," 2021 Conference on Lasers and Electro-Optics/Europe - European Quantum Electronics Virtual Conferences (CLEO@Europe-EQEC 2021), 21-25 June 2021, presentation CA-P.15 (poster presentation).
  128. N. T. Vasile, R. Chiriac, N. Pavel, "High-peak power passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG laser for multi-point ignition of lean methane-air mixtures," 9th EPS-QEOD Europhoton Virtual Conference, 30 August - 4 September 2020; poster presentation Tu-P1.3.
  127. A. Broasca, M. Greculeasa, F. Voicu, S. Hau, G. Croitoru, C. Gheorghe, N. Pavel, L. Gheorghe, "New Yb:LYSB bifunctional crystal for efficient near-infrared laser emission and self-frequency doubling conversion," 9th EPS-QEOD Europhoton Virtual Conference, 30 August - 4 September 2020; poster presentation Tu-P1.12.
  126. N. Pavel, R. Chiriac, A. Birtas, N. Boicea, F. Draghici, G. Croitoru, and M. Dinca, "Lean-mixture operation of a passenger car gasoline engine ignited by passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG laser spark plugs," CLEO Europe - EQEC 2019 Conference, 23-27 June 2019, Munich, Germany; ISBN: 978-1-7281-0469-0, OSA Technical Digest (Optical Society of America, 2019), presentation CM-P.13 (poster presentation).
  125. C. A. Brandus, C. Gheorghe, S. Hau, A. Broasca, M. Greculeasa, F. Voicu, L. Gheorghe, and N. Pavel, "Highly efficient laser emission from a Novel Nd:LGSB crystal," CLEO Europe - EQEC 2019 Conference, 23-27 June 2019, Munich, Germany, ISBN: 978-1-7281-0469-0, OSA Technical Digest (Optical Society of America, 2019), paper CA-P.44 (poster presentation).

124. G. Stanciu, L. Gheorghe, F. Voicu, C. A. Brandus, C. Tihon, G. Croitoru, and N. Pavel, "Fabrication and laser performance of highly transparent Nd:YAG ceramics," TIM 19 Physics Conference, 29 - 31 May 2019, Timisoara, Romania, presentation CM-P08 (poster presentation).
123. P. Ribes-Pleguezuelo, E. Beckert, C. Damm, A. Bodemann, R. Eberhardt, A. Tünnermann, N. Pavel, O. V. Grigore, G. Croitoru, C. A. Brandus, and N. T. Vasile, "The "Golden" Laser Spark Plug Assembly Process," The 7th Laser Ignition Conference, 22-26 April 2019, Pacifico Yokohama, Yokohama, Japan, presentation LIC7-2 (oral presentation).
- B51/122. A. Birtas, N. Boicea, G. Croitoru, M. Dinca, N. Pavel, F. Draghici, R. Chiriac, "On the possibility to improve petrol engine operation by laser ignition," TMREES Conference Series, Technologies and Materials for Renewable Energy, Environment and Sustainability, TMREES18, 19-21 Sept. 2018, Athens, Greece; presentation 175.
121. N. Pavel, G. Croitoru, O. V. Grigore, M. Dinca, T. Dascalu, "Laser ignition - A review of laser spark plug development and achievements on engine ignition," Joint International Student Conference on Photonics & Modern Laser Application Conference 2018, ISCP-INDLAS 2018, September 3-7, 2018, Alba-Iulia, Romania; Plenary lesson; Book of Abstracts ISBN 978-606-16-1001-3; pages 19-21.
120. G. Croitoru and N. Pavel, "Passive Q-switch by Cr<sup>4+</sup>:YAG saturable absorber laser operation of circular, buried depressed-cladding waveguides inscribed by fs-laser beam in Nd:YAG and Nd:YVO<sub>4</sub>," 8th EPS-QEOD EUROPHOTON CONFERENCE, Solid State, Fibre, and Waveguide Coherent Light Sources, 02-07 September, 2018, Barcelona, Spain; Europhysics Conference Abstracts Volume 42C, ISBN 979-10-96389-10-0; presentation WeP.16 (poster presentation).
119. G. Dearden, N. Pavel, M. Bärwinkel, P. Heinz, D. Brüggemann, G. Croitoru, and O. V. Grigore, "Laser spark plug developments for engine ignition," The 6th Laser Ignition Conference, 23-27 April 2018, Pacifico Yokohama, Yokohama, Japan, presentation LIC3-1 (invited talk).
118. A. Birtas, N. Boicea, F. Draghici, R. Chiriac, G. Croitoru, M. Dinca, and N. Pavel, "On the performances of a 4-cylinder automobile engine with classical spark plug and laser ignition systems," The 6th Laser Ignition Conference, 23-27 April 2018, Pacifico Yokohama, Yokohama, Japan, presentation LIC3-5 (oral presentation).
117. N. Pavel, O. V. Grigore, G. Croitoru, and M. Dinca, "A high-peak power passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG compact laser with multiple-beam output," The 6th Laser Ignition Conference, 23-27 April 2018, Pacifico Yokohama, Yokohama, Japan, presentation LICp6-1 (poster presentation).
- B50/116. A. Birtas, N. Boicea, F. Draghici, R. Chiriac, G. Croitoru, M. Dinca, T. Dascalu and N. Pavel, "On the assessment of performance and emissions characteristics of a SI engine provided with a laser ignition system," CAR 2017, The 11<sup>th</sup> Edition of The International Congress of Automotive and Transport Engineering, November 8-11 2017, University of Pitesti, Pitesti, Romania; presentation CAR 2017\_090.
115. N. Pavel, A. Birtas, M. Dinca, G. Croitoru, T. Dascalu, and N. Boicea, "Ignition by Laser Sparks of a Gasoline Automobile Engine," IONS Balvanyos 2017, International OSA Network of Student, 25-28 July 2017, Balvanyos, Romania (invited talk); Book of Abstracts, ISBN 978-606-16-0903-1, pages 34-36.
114. A. Birtas, N. Boicea, G. Croitoru, M. Dinca, T. Dascalu, N. Pavel, "Combustion Characteristics of a Gasoline-Air Mixture Laser Ignition," The 5th Laser Ignition Conference, 20-23 June 2017, Bucharest, Romania; OSA Technical Digest (online) (Optical Society of America, 2017), paper LFA3.4 (oral presentation).; ISBN: 978-1-943580-32-3 (<https://doi.org/10.1364/LIC.2017.LFA3.4>).
113. N. Pavel, A. Birtas, G. Croitoru, M. Dinca, N. Boicea, T. Dascalu, "Laser Ignition of a Gasoline Engine Automobile," The 5th Laser Ignition Conference, 20-23 June 2017, Bucharest, Romania; OSA Technical Digest (online) (Optical Society of America, 2017), paper LWA4.3 (oral presentation); ISBN: 978-1-943580-32-3 (<https://doi.org/10.1364/LIC.2017.LWA4.3>).
112. G. Croitoru, O. V. Grigore, M. Dinca, N. Pavel, M. Bärwinkel, P. Heinz, D. Brüggemann, "Aspects of Air-Breakdown with a High-Peak Power Passively Q-Switched Nd:YAG/Cr<sup>4+</sup>:YAG Laser," The 5th Laser Ignition Conference, 20-23 June 2017, Bucharest, Romania; OSA Technical Digest (online) (Optical Society of America,

- 2017), paper LWA5.9 (poster); ISBN: 978-1-943580-32-3 (<https://doi.org/10.1364/LIC.2017.LWA5.9>).
111. T. Dascalu, G. Croitoru, O. V. Grigore, and N. Pavel, "Multiple-Beam Output High-Peak Power Nd:YAG/Cr<sup>4+</sup>:YAG Laser for Laser Ignition," International Conference on Space Optics, ICSO 2016, 18-21 Oct. 2016, Biarritz, France; presentation 254 (poster presentation); Proc. of SPIE Vol. **10562**, 105625X (2016); doi: 10.1117/12.2296222
  110. G. Croitoru, T. Dascalu, F. Jipa, M. Zamfirescu, N. Pavel, "High-power operation in circular buried depressed-cladding waveguides inscribed in Nd:YAG and Nd:YVO<sub>4</sub> by femtosecond-laser beam," 7th EPS-QEOD EUROPHOTON CONFERENCE, Solid State, Fibre, and Waveguide Coherent Light Sources, 21-26 August, 2016, Vienna, Austria; presentation FWG-4.4 (oral presentation).
  109. O. V. Grigore, G. Croitoru, T. Dascalu, M. Dinca, N. Pavel, "Edge-pumped Nd:YAG/YAG lens-shaped composite laser," 7th EPS-QEOD EUROPHOTON CONFERENCE, Solid State, Fibre, and Waveguide Coherent Light Sources, 21-26 August, 2016, Vienna, Austria; presentation PO-2.1 (poster presentation).
  108. G. Salamu, N. Pavel, T. Dascalu, F. Jipa, M. Zamfirescu, "Power-scaling from buried depressed-cladding waveguides realized in Nd:YAG and Nd:YVO<sub>4</sub> by direct writing with a femtosecond-laser beam," The 16<sup>th</sup> International Balkan Workshop on Applied Physics, 7-9 July, 2016, Constanta, Romania; Book of Abstracts, pp. 77-78 (S2 L3, invited presentation).
  107. A. Birtas, G. Croitoru (Salamu), M. Dinca, T. Dascalu, N. Boicea, and N. Pavel, "The effect of laser ignition on a homogenous lean mixture of an automotive gasoline engine," The 4th Laser Ignition Conference, 17-20 May 2016, Pacifico Yokohama, Yokohama, Japan, presentation LIC6-2 (oral presentation). (page 78 of <http://opicon.jp/wp-content/uploads/2016/05/OPIC2016FinalProgram.pdf>)
  106. G. Croitoru (Salamu), O. V. Grigore, T. Dascalu, and N. Pavel, "Passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG laser with multiple-beam output," The 4th Laser Ignition Conference, 17-20 May 2016, Pacifico Yokohama, Yokohama, Japan, presentation LICp-1 (poster presentation). (page 101 <http://opicon.jp/wp-content/uploads/2016/05/OPIC2016FinalProgram.pdf>)
  105. N. Pavel, T. Dascalu, M. Dinca, G. Salamu, N. Boicea, A. Birtas, "Laser Ignition of an Automobile Engine by a High-Peak Power Nd:YAG/Cr<sup>4+</sup>:YAG Laser," Advanced Solid State Lasers Conference and Exhibition (ASSL), 04 - 09 October 2015, WISTA-Technology Park, Adlershof-Berlin, Germany; presentation ATh2A.2 (poster presentation). (doi: [10.1364/ASSL.2015.ATh2A.2](https://doi.org/10.1364/ASSL.2015.ATh2A.2))
  104. N. Pavel, G. Salamu, F. Voicu, O. Grigore, T. Dascalu, F. Jipa, and M. Zamfirescu, "Depressed-cladding waveguides inscribed in Nd:YAG and Nd:YVO<sub>4</sub> by femtosecond-laser writing technique. Realization and laser emission," ROMOPTO 2015, 11<sup>th</sup> International Conference on Optics "Micro- to Nano-Photonics IV", September 1-4, 2015, Bucharest, Romania; presentation I.I.7 (invited presentation).
  103. G. Salamu, O. Grigore, T. Dascalu, and N. Pavel, "High energy, high-peak power passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG composite ceramic laser," ROMOPTO 2015, 11<sup>th</sup> International Conference on Optics "Micro- to Nano-Photonics IV", September 1-4, 2015, Bucharest, Romania; presentation I.P.1 (poster presentation).
  102. N. Pavel, G. Salamu, O. V. Grigore, M. Dinca, T. Dascalu, N. Boicea, and A. Birtas, "High-Peak Power Passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG Lasers for Successful Ignition of an Automobile Engine," The 15<sup>th</sup> International Balkan Workshop on Applied Physics, July 2-4, 2015, Constanta, Romania, presentation S2-L3, Book of Abstracts, pgs. 80-81 (invited presentation). (<http://www.ibwap.ro/2015/uploads/template/BOOK%20of%20Abstracts%20July%202015.pdf>)
  101. N. Pavel, T. Dascalu, M. Dinca, G. Salamu, N. Boicea, and A. Birtas, "Automobile Engine Ignition by a Passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG Laser," CLEO Europe - EQEC 2015 Conference, 21-25 June 2015, Munich, Germany, presentation CA-5b.2 (oral presentation). ([https://www.osapublishing.org/abstract.cfm?uri=CLEO\\_Europe-2015-CA\\_5b\\_2](https://www.osapublishing.org/abstract.cfm?uri=CLEO_Europe-2015-CA_5b_2))
  100. T. Dascalu, A. Ionescu, G. Salamu, O. Grigore, M. Dinca, F. Voicu, C. Brandus, and N. Pavel, "Novel Thin Disk Lens Shaped Composite Nd:YAG/YAG Ceramic Laser," CLEO Europe - EQEC 2015 Conference, 21-25 June 2015, Munich, Germany, presentation CA-10.4 (oral presentation).



[https://www.osapublishing.org/abstract.cfm?uri=CLEO\\_Europe-2015-CA\\_10\\_4](https://www.osapublishing.org/abstract.cfm?uri=CLEO_Europe-2015-CA_10_4)

99. G. Salamu, N. Pavel, T. Dascalu, F. Jipa, and M. Zamfirescu, "Diode-Pumped Laser Emission from Depressed Cladding Waveguides Inscribed in Nd-doped Media by Femtosecond Laser Writing Technique," CLEO Europe - EQEC 2015 Conference, 21-25 June 2015, Munich, Germany, presentation CA-P.29 (poster presentation).  
[https://www.osapublishing.org/abstract.cfm?uri=CLEO\\_Europe-2015-CA\\_P\\_29](https://www.osapublishing.org/abstract.cfm?uri=CLEO_Europe-2015-CA_P_29)
98. C. Vasilescu, T. Dascalu, G. Stanciu, N. Pavel, E. Vasile and R. Trusca, "Transparent 1.0-at.% Nd:YAG ceramic media," TIM 14 Physics Conference - Physics without frontiers, 20-22 November 2014, Timisoara, Romania; presentation CM-P19 (poster presentation).
97. N. Pavel, G. Salamu, F. Jipa, and M. Zamfirescu, "Efficient Laser Emission under 880-nm Diode-Laser Pumping of Cladding Waveguides Inscribed in Nd:YVO<sub>4</sub> by Femtosecond-Laser Writing Technique," Advanced Solid State Lasers (ASSL) Congress, 16-21 November 2014, Shanghai, China, presentation ATu2A.26 (poster presentation). (doi: [10.1364/ASSL.2014.ATu2A.26](https://doi.org/10.1364/ASSL.2014.ATu2A.26))
96. G. Salamu, F. Voicu, A. Achim, L. Gheorghe, N. Pavel and T. Dascalu, "Efficient laser emission from a disordered Yb:CLNGG crystal," 5th International Student Conference on Photonics, Orastie, Romania, 23-26 September 2014; presentation P.07 (poster presentation).
95. G. Salamu, F. Jipa, M. Zamfirescu, F. Voicu, and N. Pavel, "Laser emission from diode-pumped Nd:YAG waveguide lasers realized by femtosecond-writing technique," 5th International Student Conference on Photonics, Orastie, Romania, 23-26 September 2014; presentation O.02 (oral presentation).
94. N. Pavel, M. Dinca, and T. Dascalu, "Passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG Lasers for Automobile-Engine Ignition," 5th International Student Conference on Photonics, Orastie, Romania, 23-26 September 2014; presentation I.07 (invited presentation).
93. N. Pavel, G. Salamu, F. Jipa, M. Zamfirescu, F. Voicu, and T. Dascalu, "Efficient laser emission from diode-pumped Nd:YAG cladding waveguides fabricated by direct writing with a helical movement technique," 6th EPS-QEOD EUROPHOTON CONFERENCE, Solid State, Fibre, and Waveguide Coherent Light Sources, 24-29 August, 2014, Neuchâtel, Switzerland, presentation TuP-T2-P-02 (poster presentation); Europhysics Conference Abstract Vol. 38 E; ISBN 2-914771-89-4.
92. N. Pavel, G. Salamu, F. Voicu, T. Dascalu, F. Jipa, and M. Zamfirescu, "Waveguides Fabricated in Nd:YAG by Direct fs-Laser Writing - Realization and Laser Emission under Diode-Laser Pumping," The 14<sup>th</sup> International Balkan Workshop on Applied Physics, July 2-4, 2014, Constanta, Romania, presentation S2-L07, Book of Abstracts p. 106 (invited presentation).
91. C. A. Vasilescu, T. Dascalu, C. Stanciu, R. Barjega, C. Luculescu and N. Pavel, "Preliminary Synthesis for Transparent 1 at.% Nd-YAG Ceramics," The 14<sup>th</sup> International Balkan Workshop on Applied Physics, July 2-4, 2014, Constanta, Romania, presentation S2-P08, Book of Abstracts p. 119 (poster presentation).
90. N. Pavel, G. Salamu, and T. Dascalu, "Passively Q-switched, composite Nd:YAG/Cr<sup>4+</sup>:YAG laser pumped laterally through a prism," The 2nd Laser Ignition Conference, 22 - 25 April 2014, Pacifico Yokohama, Yokohama, Japan, presentation LIC5-2 (oral presentation).
- 89/B48. G. Salamu, F. Jipa, M. Zamfirescu, and N. Pavel, "Laser Emission from Nd:YAG Laser Waveguides Realized by Femtosecond-Laser Writing Techniques," 2014 Photonics Europe SPIE Conference, 14-17 April 2014, Brussels, Belgium; paper number: 9135-52 (oral presentation).
88. N. Pavel, G. Salamu, F. Jipa, and M. Zamfirescu, "Laser emission from diode-pumped Nd:YAG waveguides, realized by direct femtosecond-laser writing technique," Advanced Solid State Lasers (ASSL) Congress, 27 October - 1 November 2013, Paris, France, presentation ATu2A.6 (oral presentation).
87. N. Pavel, G. Salamu, F. Voicu, F. Jipa, and M. Zamfirescu, "Femtosecond-laser inscribed Nd:YAG waveguides. Realization and laser emission," LPHYS'13: 22nd International Laser Physics Workshop, 15-19 July 2013 Prague, Czech Republic, presentation 4.1.3 (oral presentation).

86. [N. Pavel](#), G. Salamu, and O. Grigore, "Passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG lasers with high peak power," LPHYS'13: 22nd International Laser Physics Workshop, 15-19 July 2013 Prague, Czech Republic, presentation 4.1.2 (oral presentation).
85. [N. Pavel](#), G. Salamu, and T. Dascalu, "Passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG lasers for ignition of an automobile engine," The 13th International Balkan Workshop on Applied Physics, 4-6 July 2013, Constanta, Romania, presentation S5-L01, Book of Abstracts p. 116 (invited presentation).
84. G. Salamu, F. Voicu, [N. Pavel](#), T. Dascalu, F. Jipa, and M. Zamfirescu, "Diode-pumped laser emission in femtosecond-laser inscribed Nd:YAG waveguides," International Conference "Modern Laser Applications" Third Edition, INDLAS 2013, 20-24 May 2013, Bran, Romania, presentation O1 (oral presentation).
83. T. Dascalu, G. Salamu, [N. Pavel](#), O. Grigore, and F. Voicu, "Compact 'prism-by side-pumped' solid-state laser," CLEO Europe - EQEC 2013 Conference, 12-16 May 2013, Munich, Germany, presentation CA-9.5 (oral presentation).
82. [N. Pavel](#), T. Dascalu, G. Salamu, and O. Grigore, "Novel geometry for compact, diode-pumped solid-state lasers," Laser Ignition Conference '13, 23-25 April 2013, Yokohama, Japan, presentation LIC4-2 (oral presentation).
81. G. Salamu, F. Voicu, F. Jipa, M. Zamfirescu, and [N. Pavel](#), "Direct femtosecond laser written waveguides in Nd:YAG," Micro- to Nano-Photonics III, ROMOPTO 2012, 10<sup>th</sup> International Conference on Optics, 3-6 September, Bucharest, Romania, presentation II.P. 1 (poster presentation).
- 80/B47. G. Salamu, A. Ionescu, C. Brandus, O. Sandu, [N. Pavel](#), and T. Dascalu, "Generation of high-peak power 532-nm green pulses from passively Q-switched, all-poly-crystalline Nd:YAG/Cr<sup>4+</sup>:YAG ceramics laser," Micro- to Nano-Photonics III, ROMOPTO 2012, 10<sup>th</sup> International Conference on Optics, 3-6 September, Bucharest, Romania, presentation I.P. 5 (poster presentation).
79. [N. Pavel](#), G. Salamu, O. Sandu, A. Ionescu, C. Brandus, F. Voicu, and T. Dascalu, "Efficient, simultaneous dual-wavelength emission at 1.06 and 1.34  $\mu\text{m}$  in Nd:GdVO<sub>4</sub> laser crystal," 5th EPS-QEOD EUROPHOTON CONFERENCE, Solid State, Fibre, and Waveguide Coherent Light Sources, 26-31 August, 2012, Stockholm, Sweden, presentation TuP.11 (poster presentation); Europhysics Conference Abstract Vol. 36 E; ISBN 2-914771-778-9.
78. [N. Pavel](#) and T. Dascalu, "High-peak power passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG lasers," International Student Conference on Photonics 2012, SPIE Student Chapter, 8-11 May 2012, Sinaia, Romania. Book of abstracts, ISSN 2284-9750, p. 79; Invited presentation.
77. G. Salamu, O. Sandu, M. Dejanu, F. Voicu, C. Ticos, D. Popa, S. Parlac, [N. Pavel](#), and T. Dascalu, "Study of combustion process for a methane-air mixture using a microlaser system," International Student Conference on Photonics 2012, SPIE Student Chapter, 8-11 May 2012, Sinaia, Romania. Book of abstracts, ISSN 2284-9750, p. 17; Oral presentation.
76. G. Salamu, O. Sandu, M. Dejanu, F. Voicu, C. Ticos, D. Popa, S. Parlac, [N. Pavel](#), and T. Dascalu, "Investigation of laser ignition for methane-air mixture and development of a microlaser system," Physics Conference TIM-11, 24-27 Nov. 2011, Timisoara, Romania; Abstract Book, ISBN 978-973-125-354-1, presentation API-O06 (pg. 125).
75. G. Salamu, O. Sandu, [N. Pavel](#), T. Dascalu, D. Chuchumishev, A. Gaydardzhiev, and I Buchvarov, "Passively Q-switched, Composite, All-Poly-Crystalline Ceramics Nd:YAG/Cr<sup>4+</sup>:YAG Laser," 19th International Conference on Advanced Laser Technologies, 03 - 08 September 2011, Golden Sands, Bulgaria; in Book of Abstract, presentation O-6-LN, page 92.
74. [N. Pavel](#), M. Tsunekane, and T. Taira, "Passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG All-Ceramics, Composite, Monolithic Micro-Lasers with Multi-Beam Output for Laser Ignition," CLEO Europe - EQEC 2011 Conference, 22-26 May 2011, Munich, Germany, presentation CA7.1.
73. [N. Pavel](#), M. Tsunekane, K. Kanehara, and T. Taira, "Composite All-Ceramics, Passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG Monolithic Micro-Laser with Two-Beam Output for Multi-Point Ignition," CLEO 2011, Laser

- Science to Photonics Applications Conference, Baltimore, Maryland, USA, 1-6 May 2011, presentation CMP1. OSA releases: [http://www.osa.org/en-us/about\\_os/newsroom/news\\_releases/2011/lasersparksrevolution/](http://www.osa.org/en-us/about_os/newsroom/news_releases/2011/lasersparksrevolution/)
72. N. Pavel, M. Tsunekane, and T. Taira, "Passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG Laser with Enhanced Performances and Wavelength Tuning by a Volume Bragg Gratings," 4th EPS-QEOD EUROPHOTON Conference, August 29 - September 3, 2010, Hamburg, Germany, presentation TuP1 (Europhysics Conference Abstract Volume **34C**, ISBN no. 2-914771-64-9).
  71. G. Salamu, F. Voicu, A. Leca, O. Sandu, N. Pavel, T. Dascalu, M. Dejanu, D. Popa, and S. Parlac, "Characteristics of methane-air combustion measured by Schlieren method," International Student Workshop on Laser Applications ISWLA 2010, May 25-28, 2010, Bran, Romania, presentation P24.
  70. N. Pavel, M. Tsunekane, and T. Taira, "Diode-Pumped Passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG Laser Controlled by Volume Bragg Gratings," CLEO/QELS 2010: Laser Science to Photonic Applications Conference, May 16-21, 2010, San Jose, California, USA, presentation JTuD117.
  69. N. Pavel, M. Tsunekane, and T. Taira, "Passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG Laser with a Volume Bragg Gratings Output Coupler," Advanced Solid-State Photonics (ASSP) Conference, January 31 - February 3, 2010, San Diego, USA, presentation AWB18.
  68. T. Dascalu and N. Pavel, "Progress in Passively Q-switched Lasers," Micro- to Nano-Photonics II - ROMOPTO 2009 Conference, August 31 - Sept. 03, 2009, Sibiu, Romania, presentation I.I.2 (**invited talk**).
  67. T. Dascalu, N. Pavel, N. Vasile, A. Leca, G. Salamu, and O. Sandu, "Passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG Laser Operated at High Temperature," Micro- to Nano-Photonics II - ROMOPTO 2009 Conference, August 31 - Sept. 03, 2009, Sibiu, Romania, presentation I.O.3.
  66. N. Pavel, M. Tsunekane, and T. Taira, "Passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG Laser with a Volume Bragg Grating," Micro- to Nano-Photonics II - ROMOPTO 2009 Conference, August 31 - Sept. 03, 2009, Sibiu, Romania, presentation I.O.1.
  65. N. Pavel, "High-Power Intracavity Frequency-Doubled Nd:GdVO<sub>4</sub> Lasers Pumped Directly into the Emitting Level," Nonlinear Optics (NLO) Conference, July 12-17, 2009, Honolulu, Hawaii, USA, paper JTUB24.
  64. N. Pavel, G. Salamu, O. Sandu, and T. Dascalu, "Passively Q-switched Cr<sup>4+</sup>:YAG/Nd-Lasers Pumped Directly into the Emitting Level," 10th International Balkan Workshop on Applied Physics (IBWAP), July 6-8, 2009, Constanta, Romania, presentation S5-P60; Book of Abstracts, ISBN 978-973-614-507-0, pp. 199-200 (2009).
  63. V. Lupei, A. Lupei, N. Pavel, and A. Ikesue, "Spectroscopic Bases for Performance Enhancement and Power Scaling of Nd:GSGG Lasers," CLEO-Europe 2009 Conference, June 14-19, 2009, Munich, Germany, presentation CA.P.39.
  62. T. Dascalu, N. Pavel, and N. Vasile, "Operation at high temperature of a diode-pumped passively Q-switched Nd:YAG/Cr<sup>4+</sup>:YAG laser," CLEO-Europe 2009 Conference, June 14-19, 2009, Munich, Germany, presentation CA.P.33.
  61. N. Pavel, T. Dascalu, V. Lupei, and N. Vasile, "Cr<sup>4+</sup>:YAG Passive Q-switching of Directly Pumped Nd Lasers," CLEO-Europe 2009 Conference, June 14-19, 2009, Munich, Germany, presentation CA.P.38.
  60. T. Dascalu, N. Pavel, and N. Vasile, "High-Temperature Operation of a Diode-Pumped Nd:YAG Laser Passively Q-Switched by Cr<sup>4+</sup>:YAG Saturable Absorber," CLEO/IQEC 2009 Conference, Baltimore, Maryland, USA, May 31-June 5, 2009, presentation JThE6.
  59. N. Pavel, T. Dascalu, N. Vasile, and V. Lupei, "Efficient Laser Emission of Nd-vanadates on the 1.34- $\mu\text{m}$  <sup>4</sup>F<sub>3/2</sub> to <sup>4</sup>I<sub>13/2</sub> Transition under Pumping with Diode Lasers Directly into the Emitting Level," CLEO/IQEC 2009 Conference, Baltimore, Maryland, USA, May 31-June 5, 2009, presentation JThE5.
  58. V. Lupei, A. Lupei, C. Gheorghe, N. Pavel, and A. Ikesue, "New spectroscopic and laser emission properties of Nd:GSGG crystals and ceramics," 3rd EPS-QEOD EUROPHOTON Conference, August 31 - September 5, 2008, Paris, France, presentation TUp.27.

57. N. Pavel and V. Lupei, "Direct pumping of Nd-based solid-state lasers," 9th International Balkan Workshop on Applied Physics (IBWAP), July 7-9, 2008, Constanta, Romania, presentation S5-L05, invited lecture; Book of Abstracts, ISBN 978-973-614-415-8, pp. 162-163.
56. N. Pavel, "Simultaneous dual-wavelength emission at 0.9 and 1.06  $\mu\text{m}$  in Nd-based laser crystals," 9th International Balkan Workshop on Applied Physics (IBWAP), July 7-9, 2008, Constanta, Romania, presentation S5-P70; Book of Abstracts, ISBN 978-973-614-415-8, page 198.
55. V. Lupei, A. Lupei, C. Gheorghe, N. Pavel, A. Ikesue, "New high-resolution spectroscopic and diode-pumped laser emission properties of Nd:GSGG," The 2<sup>nd</sup> INDLAS International Conference Modern Laser Applications, May 20-23, 2008, Bran, Romania.
54. N. Pavel, C. Kränkel, R. Peters, K. Petermann, and G. Huber, "High-power emission of Nd-vanadate thin-disk lasers in-band pumped at 0.88  $\mu\text{m}$  directly into the emitting level," CLEO/QELS 2008 Conference, May 4-9, 2008, San Jose, California, USA, presentation JTUa1.
53. N. Pavel, C. Kränkel, R. Peters, K. Petermann, and G. Huber, "In-band pumped, high-power intracavity frequency doubled Nd-vanadate thin-disk lasers at 530 nm," Advanced Solid-State Photonics Conference, January 27-30, 2008, Nara, Japan, presentation MC41.
52. N. Pavel, K. Lünstedt, K. Petermann, and G. Huber, "Continuous-wave high power green generation by intracavity frequency doubling of Nd-based thin-disk lasers," CLEO/Europe-IQEC 2007 Conference, June 17-22, Munich, Germany, presentation CA4-4-TUE.
51. N. Pavel, K. Lünstedt, K. Petermann, and G. Huber, "Simultaneous dual-wavelength emission on the  ${}^4F_{3/2} \rightarrow {}^4I_{9/2}$  and  ${}^4F_{3/2} \rightarrow {}^4I_{11/2}$  transitions employing Nd-based thin-disk lasers," CLEO/Europe-IQEC 2007 Conference, June 17-22, Munich, Germany, presentation CA-4-MON.
50. N. Pavel, K. Lünstedt, K. Petermann, and G. Huber, "Nd-vanadate thin-disk lasers under diode pumping into the  ${}^4F_{5/2}$  and  ${}^4F_{3/2}$  levels," CLEO/QELS 2007 Conference, May 6-11, Baltimore, Maryland, USA, presentation JWA90.
49. A. Richter, E. Heumann, N. Pavel, G. Huber, D. Parisi, A. Toncelli, A. Dening, and W. Seelert, "Intracavity frequency-doubling of Praseodymium lasers emitting at 640 nm in continuous wave and Q-switched mode," 2nd EPS-QEOD EuroPhoton Conference, 10-15 Sept., 2006, Pisa, Italy, paper WeE2.
48. K. Lünstedt, N. Pavel, K. Petermann, and G. Huber, "Continuous-wave dual-wavelength emission at 912 nm and 1063 nm in a thin-disk Nd:GdVO<sub>4</sub> crystal," 15th International Laser Physics Workshop, LPHYS '06, 24-28 July, 2006, Lausanne, Switzerland, paper 4.3.2.
47. A. Richter, E. Heumann, N. Pavel, and G. Huber, "Ultraviolet generation by intracavity frequency doubling of a Pr:LiYF<sub>4</sub> laser operating at 640 nm," 2006 CLEO/QELS Conference, 21-26 May, Long Beach, California, USA, paper CFB1.
46. N. Pavel and T. Taira, "High-power multi-pass pumped microchip Nd:GdVO<sub>4</sub> laser," IQEC/CLEO-PR 2005, July 11-15, 2005, Tokyo, Japan, paper CTuI3-5.
45. N. Pavel, V. Lupei, and T. Taira, "Efficient laser emission at 1.3  $\mu\text{m}$  and thermal effects in Nd:YAG under diode pumping into the  ${}^4F_{3/2}$  emitting level," IQEC/CLEO-PR 2005, July 11-15, 2005, Tokyo, Japan, CThI1-5.
44. N. Pavel, T. Taira, M. Imai, T. Yoshino, and M. Imaeda, "Blue generation at 456 nm by single-pass frequency-doubling of a Nd:GdVO<sub>4</sub> micro-laser in a periodically poled MgO:LiNbO<sub>3</sub> ridge-type waveguide," CLEO/Europe-EQEC 2005, 12-17 June, Munich, Germany, Europhysics Conference Abstracts on CD, vol. 29B, paper CA-18-MON.
43. N. Pavel and T. Taira, "Efficient 1.06 and 1.34- $\mu\text{m}$  laser emission of highly-doped Nd:YAG under 885-nm diode pumping into the emitting level," CLEO/Europe-EQEC 2005 Conference, 12-17 June, Munich, Germany, Europhysics Conference Abstracts on CD, vol. 29B, paper CA-19-MON.
42. N. Pavel, T. Taira, M. Imai, T. Yoshino, and M. Imaeda, "Deep blue generation at 456 nm in a periodically poled MgO:LiNbO<sub>3</sub> ridge-type waveguide by single-pass frequency doubling of a Nd:GdVO<sub>4</sub> micro-laser," 2005 CLEO/QELS Conference, 23-27 May, Baltimore, Maryland, USA, paper CTuC30.

- 41/B36 [N. Pavel](#), T. Taira, K. Mizuuchi, A. Morikawa, T. Sugita, and K. Yamamoto, "Continuous-wave 456-nm blue light generation in a periodically poled MgO:LiNbO<sub>3</sub> by single-pass frequency doubling of a 912-nm Nd:GdVO<sub>4</sub> laser," *Advanced Solid-State Photonics Conference Technical Digest on CD* (The Optical Society of America, Washington, DC, 2005), Vienna, Austria, February 2005, paper MB27.
- 40/B35 [N. Pavel](#), Y. Sato, T. Taira, Y. Tamaoki, and H. Kan, "Generation of 5 W continuous-wave green power at 531 nm based on a frequency-doubled Nd:GdVO<sub>4</sub> laser pumped into the emitting level at 879 nm," *Advanced Solid-State Photonics Conf. Technical Digest on CD* (The Optical Society of America, Washington, DC, 2005), Vienna, Austria, February 2005, paper MF19.
39. K. Kasazumi, A. Morikawa, T. Sugita, K. Mizuuchi, K. Yamamoto, [N. Pavel](#), and T. Taira, "A laser light source generating ultra-violet and green light for holographic memory system," *International Symposium on Optical Memory (ISOM '04)*, 11-15 October, Jeju Island, Korea, paper Th-I-05, pp. 168-169.
38. [N. Pavel](#), T. Taira, K. Mizuuchi, A. Morikawa, T. Sugita, and K. Yamamoto, "Continuous-wave ultraviolet generation at 354 nm in a periodically poled MgO:LiNbO<sub>3</sub>," *Nonlinear Optics: Materials, Fundamentals and Applications Conference, Technical Digest on CD* (OSA, Washington, DC, 2004), 2-6 August 2004, Hawaii, USA, paper TuA2.
37. [N. Pavel](#), T. Taira, Y. Tamaoki, and H. Kan, "Continuous-wave high-power intracavity frequency-doubled Nd:GdVO<sub>4</sub>-LBO green laser," *Nonlinear Optics: Materials, Fundamentals and Applications Conference, Technical Digest on CD* (OSA, Washington, DC, 2004), 2-6 August 2004, Hawaii, USA, paper WD6.
36. Y. Sato, [N. Pavel](#), and T. Taira, "Comparative study of Nd:GdVO<sub>4</sub> and Nd:YVO<sub>4</sub> laser oscillation under 808-nm and 879-nm pumping," *CLEO/IQEC and PhAST Technical Digest on CD* (The Optical Society of America, Washington, DC, 2004), 16-21 May, San Francisco, USA, paper CThJJ7.
35. [N. Pavel](#), I. Shoji, and T. Taira, "Continuous-wave high-power Nd:YAG-KNbO<sub>3</sub> blue laser at room temperature," *CLEO/IQEC and PhAST Technical Digest on CD* (The Optical Society of America, Washington, DC, 2004), 16-21 May, San Francisco, USA, paper CThT65.
34. [N. Pavel](#), I. Shoji, T. Taira, K. Mizuuchi, A. Morikawa, T. Sugita, and K. Yamamoto, "1-W green generation by frequency-doubling of a diode end-pumped Nd:GdVO<sub>4</sub> laser in a bulk periodically poled MgO:LiNbO<sub>3</sub> at room temperature," *CLEO/IQEC and PhAST Technical Digest on CD* (The Optical Society of America, Washington, DC, 2004), 16-21 May, San Francisco, USA, paper CFE4.
- 33/B34 Y. Sato, [N. Pavel](#), and T. Taira, "Near quantum limit laser oscillation and spectroscopic properties of Nd:GdVO<sub>4</sub> single crystal," *Technical Digest of Advanced Solid-State Photonics Conference*, Santa Fe, New Mexico, USA, February 2004, paper WB5.
- 32/B33 T. Dascalu, [N. Pavel](#), M. Tsunekane, and T. Taira, "Continuous-wave 90-W output power diode edge-pumped microchip composite Yb:YAG laser," *Technical Digest of Advanced Solid-State Photonics Conference*, Santa Fe, New Mexico, USA, February 2004, paper WA2.
- 31/B32 [N. Pavel](#), I. Shoji, T. Taira, K. Mizuuchi, A. Morikawa, T. Sugita, and K. Yamamoto, "High-power green generation at room temperature in a periodically poled MgO:LiNbO<sub>3</sub> by frequency doubling of a diode end-pumped Nd:GdVO<sub>4</sub> laser," *Technical Digest of Advanced Solid-State Photonics Conference*, Santa Fe, New Mexico, USA, February 2004, paper WD3.
30. T. Dascalu, T. Taira, and [N. Pavel](#), "Thermo-optical effects in high-power diode edge-pumped microchip composite Yb:YAG laser," *CLEO/QELS Europe Conference*, Munich, Germany, June 2003, paper CA-8-3.
29. [N. Pavel](#), I. Shoji, T. Taira, M. Iwai, T. Yoshino, and M. Imaeda, "Harmonic blue light generation from a diode end-pumped Nd:YAG laser by a periodically poled MgO:LiNbO<sub>3</sub> ridge-type waveguide," *Technical Digest of CLEO/QELS Europe Conference*, Munich, Germany, June 2003, paper CA8T.
28. [N. Pavel](#), V. Lupei, and T. Taira, "The effect of Nd concentration on 1064 and 946-nm emission of Nd:YAG lasers under continuous-wave Ti:Sapphire pumping," *Technical Digest of CLEO/QELS Europe Conference*, Munich, Germany, June 2003, paper CA9T.



27. Y. Sato, [N. Pavel](#), I. Shoji, T. Taira, and V. Lupei, "The laser oscillation with near quantum-limit slope efficiency under direct pumping in Nd:YVO<sub>4</sub>", CLEO/QELS Conference, Baltimore, USA, June 2003, CWG4.
26. V. Lupei, [N. Pavel](#), and T. Taira, "The effect of Nd concentration on fundamental and frequency-doubled CW laser emission of miniature Nd:YAG lasers," CLEO/QELS Conf., Baltimore, USA, June 2003, CThM44.
25. T. Dascalu, T. Taira, [N. Pavel](#), and I. Shoji, "Diode edge-pumped microchip composite Yb:YAG laser: thermal effects and laser performances," CLEO/QELS Conference, Baltimore, USA, June 2003, paper CWG2.
24. [N. Pavel](#), I. Shoji, T. Taira, M. Iwai, T. Yoshino, and M. Imaeda, "High-power blue emission by frequency doubling of a diode end-pumped Nd:YAG laser through a periodically poled MgO:LiNbO<sub>3</sub> ridge-type waveguide," Technical Digest of CLEO/QELS Conference, Baltimore, USA, June 2003, paper CWO4.
- 23/B24 Y. Sato, [N. Pavel](#), T. Taira, and V. Lupei, "Near quantum-defect slope efficiency laser operation in Nd:YVO<sub>4</sub> under direct pumping into the emitting level," Technical Digest of Advanced Solid-State Photonics Conference, San Antonio, Texas, USA, Feb. 2003, 62-64.
- 22/B23 T. Dascalu, [N. Pavel](#), T. Taira, "Diode radially-pumped microchip Yb:YAG laser: High power operation," Digest of Advanced Solid-State Photonics Conference, San Antonio, Texas, USA, February 2003, 213-216.
- 21/B22 [N. Pavel](#), I. Shoji, T. Taira, M. Iwai, T. Yoshino, and M. Imaeda, "High-power blue generation in a periodically poled MgO:LiNbO<sub>3</sub> ridge-type waveguide by frequency doubling of a diode end-pumped Nd:YAG laser," Digest of Advanced Solid-State Photonics Conference, San Antonio, Texas, USA, February 2003, 350-353.
20. V. Lupei, [N. Pavel](#), Y. Sato, and T. Taira, "Highly-efficient laser emission at 1064 nm in Nd-doped vanadates," Digest of 5th French-Israeli Workshop on Optical Properties of Inorganic Materials, Lyon, France, Dec. 2002.
19. V. Lupei, [N. Pavel](#), Y. Sato, and T. Taira, "One-micron laser emission in concentrated Nd:YVO<sub>4</sub> and Nd:GdVO<sub>4</sub> crystals," International Quantum Electron. Conf. (IQEC/LAT), Moscow, Russia, June 2002, 117.
18. V. Lupei, [N. Pavel](#), and T. Taira, "Highly efficient CW 946-nm Nd:YAG laser emission under direct 885-nm pumping," Digest of International Quantum Electron. Conf. (IQEC/LAT), Moscow, Russia, June 2002, 237.
17. T. Dascalu, T. Taira, [N. Pavel](#), Y. Aoyagi, and J. Saikawa, "Continuous-Wave Low Power Diode Radial Pumped Microchip Composite Yb:YAG Laser," Technical Digest of CLEO/QELS Conference, Long Beach, California, USA, May 2002, 389.
16. V. Lupei, [N. Pavel](#), T. Taira, and A. Ikesue, "CW and passively Q-switched 1064-nm laser emission of concentrated Nd:YAG components under 885-nm diode laser pumping," Technical Digest of CLEO/QELS Conference, Long Beach, California, USA, May 2002, 512.
15. T. Taira, [N. Pavel](#), V. Lupei, "Highly efficient Nd-ion doped microchip lasers under hot band pumping," Digest of International Laser, Lightwave and Microwave Conference, Shanghai, China, November 2001, 170.
14. V. Lupei, T. Taira, [N. Pavel](#), I. Shoji, and A. Ikesue, "Efficient laser emission in resonantly pumped Nd:YAG ceramics," Technical Digest of CLEO/Pacific Rim Conference, Tokyo, Japan, July 2001, 19.
13. V. Lupei, T. Taira, [N. Pavel](#), I. Shoji, and A. Ikesue, "Laser emission under resonant pump in the emitting level of highly doped Nd materials," Digest of CLEO/QELS Conference, Baltimore, USA, May 2001, 559.
12. [N. Pavel](#), J. Saikawa, S. Kurimura, I. Shoji, and T. Taira, "Intra-cavity frequency doubling of a Nd:YAG laser passively Q-switched by Cr<sup>4+</sup>:YAG saturable absorber," Technical Digest of CLEO/QELS Conference, Baltimore, USA, May 2001, 172-173.
11. [N. Pavel](#), J. Saikawa, S. Kurimura, and T. Taira, "Diode Radial-Pumped Composite Yb:YAG Microchip Laser," Technical Digest of CLEO/QELS Conference, Baltimore, USA, May 2001, 171.
- 10/B20 [N. Pavel](#), S. Kurimura, J. Saikawa, I. Shoji, and T. Taira, "Diode-pumped Nd:YAG Laser Passively Q-switched by Cr<sup>4+</sup>:YAG saturable absorber and intra-cavity frequency doubled by LBO crystal," Advanced Solid State Lasers Conference, Seattle, USA, January 2000, 144-146.
9. [N. Pavel](#), S. Kurimura, I. Shoji, J. Saikawa, and T. Taira, "High average power diode-pumped composite Nd:YAG laser passively Q-switched by Cr<sup>4+</sup>:YAG saturable absorber," Technical Digest of CLEO/Europe-IQEC Conference, Nice, France, September 2000, p. 177.



- 8/B12 N. Pavel and T. Taira, "A high-efficiency TEM<sub>00</sub> miniature Nd:YAG laser designed by pump-beam M<sup>2</sup> factor method," Advanced Solid State Lasers Conference, Boston, USA, January 1999, paper MB13.
- 7/B9 T. Taira, M. Otaka, T. Kobayashi, N. Pavel, and H. Ito, "M<sup>2</sup> factor method for design of longitudinally-pumped solid-state lasers," Advanced Solid State-Lasers Conference, Idaho, USA, January 1998, paper AMB 13-1.
6. T. Dascalu, N. Pavel, and R. Florescu, "Nd:YAG laser Q-switched by Li:F<sub>2</sub><sup>-</sup> saturable absorbers in various resonator configurations," Proceedings SPIE **2461**, ROMOPTO '94: 4th Conference in Optics, Bucharest, Romania, September 1994, 77-79 (1995).
  5. N. Pavel, T. Dascalu, and R. Florescu, "Thermal compensation of unstable lasers with variable output mirror," Proc. SPIE **2461**, ROMOPTO '94: 4th Conference in Optics, Bucharest, Romania, Sept. 1994, 56-58 (1995).
  4. N. Pavel, T. Dascalu, H. Totia, R. Florescu, and V. Lupei, "Adaptive optical mirror for unstable resonators with thermal effects," Technical Digest of CLEO/Europe Conference, Amsterdam, Holland, August 1994, **IEEE TH0614**, 115-116.
  3. T. Dascalu, N. Pavel, and V. Lupei, "Design of optical resonators for long pulse Nd:YAG laser with thermal transient effects," Proc. SPIE **1983**, 16th Congress of the International Commission for Optics: Optics as a Key to High Technology, Budapest, Hungary, July 1993, 44-45.
  2. N. Pavel, T. Dascalu, and V. Lupei, "The amplification of nanosecond laser pulses with a high quality laser beam," Proc. SPIE **1983**, 16th Congress of the International Commission for Optics: Optics as a Key to High Technology, Budapest, Hungary, July 1993, 42-43.
  1. N. Pavel, T. Dascalu, V. Lupei, M. Ionita-Manzatu, and A. Dinca, "Thermal lensing effects in Q-switched Nd:YAG laser with super-Gaussian mirrors," Proceedings SPIE **1983**, 16th Congress of the International Commission for Optics: Optics as a Key to High Technology, Budapest, Hungary, July 1993, 40-41

## **D. PATENTS**

- x. [N. Pavel](#), O.-V. Grigore, G. Croitoru, "Sistem Laser pentru Aprinderea Amestecurilor Combustibile," Romanian patent application, OSIM; Application number: A/00314/21.06.2023.
- x. K. Kanehara, [N. Pavel](#), T. Taira, M. Tsunekane, "Laser ignition device," International Patent Classification: F02P-023/04. Patent Number(s): WO2012039123-A1 (Publication date: 29 Mar 2012; Application WOJP005268/20 Sep 2011); JP2012087774-A (Publication date: 10 May 2012; Application JP012645/25 Jan 2011); US2013186362-A1 (Publication date: 25 July 2013; Application US13825467/21 Mar 2013). Derwent Primary Accession Number: 2012-D77968.
11. M. Ganciu-Petcu, O. S. Stoican, A. L. Groza, [N. Pavel](#), G. Croitoru, A. Marcu, "Sistem Combinat Electric-Laser pentru Controlul Descărcărilor Electrice / Combined Electric-Laser System for Electric Discharge Control," Romanian patent, No. RO133688-B1 / 28.05.2021 BOPI5/2021; OSIM application number a 2018 01123 / 19.12.2018. Derwent Primary Accession Number: 2019-93514N.
10. A. Birtas, N. Boicea, T. Dascalu, [N. Pavel](#), G. Salamu, O.-V. Grigore, "Bougie Laser pour Moteur à Combustion," Patent No. FR3051511-B1 / 02.10.2020; Application Nr. FR3051511-A1 / 18.05.2016; International Patent Classification: F02P-023/4; Derwent Primary Accession Number: 2017-79875J.
9. A. Birtas, N. Boicea, T. Dascalu, [N. Pavel](#), G. Salamu, O.-V. Grigore, "Bujie cu Laser, pentru un Motor cu Ardere / Laser Spark Plug for Combustion Engine," Romanian patent, No. RO132267/30.06.2020 BOPI6/2020, Application number: a 2016 00353/18.05.2016. Derwent Primary Accession Number: 2017-80743V.
8. T. Dascalu, [N. Pavel](#), G. Salamu, O. Grigore, F. Voicu, M. Dinca, "Sistem Laser cu Doua Fascicule pentru Ignitia Motoarelor cu Ardere Interna / Laser System with Two Beams for Igniting the Internal Combustion Engines," Romanian patent, No. RO129307B1/30.12.2019 BOPI 12/2019; Application number: a 2013 00417/30.05.2013. Derwent Primary Accession Number: 2014-F52453.
7. T. Dascalu, O. Sandu, F. Voicu, [N. Pavel](#), G. Salamu, M. Dinca, "Sistem Laser pentru Ignitia Motoarelor cu Ardere Interna / Laser System for Igniting the Internal Combustion Engines," Romanian patent, No. RO126373 / 30.08.2018 BOPI 8/2018; Application number: a 2010 01326/13.12.2010 published in BOPI 6/2011, 30/06.2011; International Patent Classification: A61M-005/31; B65B-003/04. Derwent Primary Accession Number: 2011-Q13136.
6. T. Taira, [N. Pavel](#), V. Lupei, I. Shoji, and Y. Sato, "Laser Equipment," Japan Patent, Publication No. JP2004119487, Application number: 2002-277672, Date of filing: 24.09.2002, Date of publication of application: 15.04.2004. Derwent Primary Accession Number: 2004-368335.
5. T. Taira, T. Dascalu, [N. Pavel](#), "Laser Apparatus," Japan Patent, Publication No. JP2004152817-A; JP3953937-B2; Application number: 2002-313598, Date of filing: 29.10.2002, Date of publication of application: 27.05.2004. Registration number: JP-3953937-B. Derwent Primary Accession Number: 2004-444868.
4. T. Wada, T. Ogawa, T. Taira, I. Shoji, Y. Sato, V. Lupei, [N. Pavel](#), "Laser System," Japan Patent, Publication No. JP2003332657-A; JP4544606-B2; Application number: 2002-142604, Date of filing: 17.05.2002, Date of publication of application: 21.11.2003. Registration number: JP-4544606-B. Derwent Primary Accession Number: 2004-015897.
3. H. Suga, A. Sone, H. Sakai, T. Taira, [N. Pavel](#), V. Lupei, "Laser Light Source," Japan Patent, Publication No. JP2003198019-A; US2003138005-A1; US6931047-B2; Application number: 2001-392330, Date of filing: 25.12.2001, Date of publication of application: 11.07.2003. Derwent Primary Accession Number: 2003-564707.
2. Y. Hirano, Y. Koyata, [N. Pavel](#), S. Yamamoto "Semiconductor Laser Light Emitting Apparatus and Solid-State Laser Rod Excitation Module," Japan Patent, Publication No. JP2008300885-A; JP4927051-B2; Application number: 2008-235242, Date of filing: 12.09.2008, Date of publication of application: 11.12.2008. Registration number: JP-4927051-B. Derwent Primary Accession Number: 2009-A20311.
1. Y. Hirano, S. Yamamoto, [N. Pavel](#), Y. Koyata, "Semiconductor Laser Light Output Device and Solid-State Laser Rod Excitation Module," Japan Patent, Publication No. JP2000312043-A; US6594299-B1; US2003206569-A1; US6738407-B2; US2004136432-A1; US7221694-B2, Application number: 1999-129183, Date of filing: 10.05.1999, Date of publication of application: 07.11.2000. Derwent Primary Accession Number: 2001-047619.