




## **LIST OF PUBLICATIONS**

### **1. PAPERS PUBLISHED IN PEER-REVIEW JOURNALS**

64. A. Broasca, M. Greculeasa, F. Voicu, G. Stanciu, S. Hau, **C Gheorghe**, C.-A. Brandusa, N. Pavel, M. Enculescu, L. Gheorghe, "Growth and characterization of 3.5 at.% Nd:LGSB bifunctional crystal," *Opt. Mater.*, available online 25 November 2021, 111832, <https://doi.org/10.1016/j.optmat.2021.111832>.
63. S. Hau, G. Stanciu, D. Avram, L. Gheorghe, **C. Gheorghe** , "Energy transfer and luminescent properties of Tb<sup>3+</sup> and (Tb<sup>3+</sup>, Yb<sup>3+</sup>) doped CNGG phosphors," *J. Rare Earth*, available online 12 september 2021, <https://doi.org/10.1016/j.jre.2021.09.008>.
62. A. M. Voiculescu, S. Hau, G. Stanciu, D. Avram, **C. Gheorghe** , "Optical thermometry through infrared excited green upconversion emissions of Er<sup>3+</sup>-Yb<sup>3+</sup> co-doped LaAlO<sub>3</sub> phosphors," *J. Lumin.* **242**, 118602 (2022).
61. N. A. Safronova, R. P. Yavetskiy, O. S. Kryzhanovska, M. V. Dobrotvorska, A. E. Balabanov, I. O. Vorona, A. V. Tolmachev, V. N. Baumer, I. Matolínov, D. Yu. Kosyanov, O. O. Shichalin, E. K. Papynov, S. Hau, **C. Gheorghe**, "A novel IR-transparent Ho<sup>3+</sup>:Y<sub>2</sub>O<sub>3</sub>-MgO nanocomposite ceramics for potential laser applications," *Ceram. Int.* **47**(1), 1399-1406 (2021).
60. G. Stanciu, F. Voicu, C. A. Brandus, C. E. Tihon, S. Hau, **C. Gheorghe**, G. Croitoru, L. Gheorghe, M. Dumitru, "Enhancement of the laser emission efficiency of Yb:Y<sub>2</sub>O<sub>3</sub> ceramics via multi-step sintering method fabrication," *Opt. Mater.* **109**, 110411 (2020).
59. 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. Alloy. Compd.* **844**, 156143 (2020).
58. 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).
57. L. Gheorghe, A. Broasca, M. Greculeasa, F. Voicu, G. Stanciu, S. Hau, G. Croitoru, C. A. Brandus, **C. Gheorghe**, F. Khaled, P. Loiseau, G. Aka, "Czochralski-grown La<sub>x</sub>Gd<sub>y</sub>R<sub>z</sub>Sc<sub>4-x-y-z</sub>(BO<sub>3</sub>)<sub>4</sub> (R = Yb, Nd) crystals - A review of recent developments," *Opt. Mat. X* **7**, 100052 (2020).
56. C. A. Brandus, S. Hau, A. Broasca, M. Greculeasa, F. M. Voicu, **C. Gheorghe**, L. Gheorghe, and T. Dascalu, "Efficient 1 μm Laser Emission of Czochralski-Grown Nd:LGSB Single Crystal," *Materials* **12**(12), 2005 (2019).
55. S. Hau, **C. Gheorghe** , L. Gheorghe, F. Voicu, M. Greculeasa, G. Stanciu, A. Broasca, M. Enculescu, "Spectroscopic investigations of Pr<sup>3+</sup> ions doped CNGG and CLNGG single crystals," *J. Alloy. Compd.* **799**, 288-301 (2019).
54. G. Stanciu, L. Gheorghe, F. Voicu, S. Hau, **C. Gheorghe**, G. Croitoru, M. Enculescu, and R.P. Yavetskiy, "Highly transparent Yb:Y<sub>2</sub>O<sub>3</sub> ceramics obtained by solid-state reaction and combined sintering procedures," *Ceram. Int.* **45**(3), 3217-3222 (2019).
53. L. Gheorghe, M. Greculeasa, F. Voicu, **C. Gheorghe**, S. Hau, A. M. Vlaicu, K. N. Belikov, E. Yu. Bryleva, O. V. Gaiduk, "Crystal growth and structural characterization of Sm<sup>3+</sup>, Pr<sup>3+</sup> and Dy<sup>3+</sup>-doped CNGG and CLNGG single crystals," *Opt. Mater.* **84**, 335-338 (2018).
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  50. I. O. Vorona, R. P. Yavetskiy, A. G. Doroshenko, S. V. Parkhomenko, A. V. Tolmachev, V. N. Baumer, D. Yu Kosyanov, V. I. Vovna, V. G. Kuryavyi, M. Greculeasa, L. Gheorghe, S. Hau, **C. Gheorghe**, G. Croitoru, "Structural-phase state and lasing of 5-15 at.%  $\text{Yb}^{3+}:\text{Y}_3\text{Al}_5\text{O}_{12}$  optical ceramics," *J. Eur. Cer. Soc.* **37**(13), 4115-4122 (2017).
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  44. V. Lupei, A. Lupei, **C. Gheorghe**, A. Ikesue, "Emission sensitization processes involving  $\text{Nd}^{3+}$  in YAG," *J. Lumin.* **170**, 594- 601, (2016).
  43. A. Lupei, V. Lupei, S. Hau, **C. Gheorghe**, F. Voicu, "Structure and temperature effects on  $\text{Nd}^{3+}$  spectra in polycrystalline mixed scandium aluminum garnets  $\text{Y}_3\text{Sc}_x\text{Al}_{5-x}\text{O}_{12}$ ," *Opt. Mater.* **47**, 465-472 (2015).
  42. **C. Gheorghe**, L. Gheorghe, A. Achim, S. Hau, R. D. Avram, G. Stanciu, "Optical properties of  $\text{Sm}^{3+}$  doped strontium hexa-aluminate single crystals," *J. Alloy. Compd.* **622**, 296-302 (2015).
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  38. A. Lupei, V. Lupei, and **C. Gheorghe**, "Electronic structure of  $\text{Sm}^{3+}$  ions in YAG and cubic sesquioxide ceramics," *Opt. Mater.* **36** (2), 419-424 (2013).
  37. A. Lupei, V. Lupei, and **C. Gheorghe**, "Thermal shifts of  $\text{Sm}^{3+}$  lines in YAG and cubic sesquioxide ceramics," *Opt. Mat. Express* **3** (10), 1641-1646 (2013).
  36. A. Lupei, C. Tiseanu, **C. Gheorghe**, and F. Voicu, "Optical spectroscopy of  $\text{Sm}^{3+}$  in  $\text{C}_2$  and  $\text{C}_{3i}$  sites of  $\text{Y}_2\text{O}_3$  ceramics," *Appl. Phys. B*, **108** (4), 908-918 (2012).
  35. L. Gheorghe and **C. Gheorghe**, "Judd-Ofelt analysis and laser investigations of  $\text{Nd}^{3+}$ -doped  $\text{Gd}_{1-x}\text{Sc}_x\text{Ca}_4\text{O}(\text{BO}_3)_3$  single crystal," *Optoelectronics and Advanced Materials - Rapid Communications* **6** (3-4), 374-382 (2012).
  34. V. Lupei, A. Lupei, A. Ikesue, **C. Gheorghe**, L. Gheorghe, A. Achim, "Crystal field disorder effects in the optical spectra of  $\text{Nd}^{3+}$  and  $\text{Yb}^{3+}$ -doped CLNGG laser crystals and ceramics", *J. Appl. Phys.* **112** (6), 063110, 2012.
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31. **C. Gheorghe**, L. Gheorghe, P. Loiseau, and G. Aka, "Spectroscopic features and laser performance at 1.06 μm of Nd<sup>3+</sup> doped Gd<sub>1-x</sub>Lu<sub>x</sub>Ca<sub>4</sub>O(BO<sub>3</sub>)<sub>3</sub> single crystal", *J. Appl. Phys.*, **111** (1), 013102 (2012).
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29. A. Lupei, V. Lupei, **C. Gheorghe**, and A. Ikesue, "Spectroscopic investigation of Sm<sup>3+</sup> in YAG ceramic," *Rom. Rep. Phys.* **63** (3), 817-822 (2011).
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26. V. Lupei, A. Lupei, **C. Gheorghe**, and A. Ikesue, "Sensitized Yb<sup>3+</sup> emission in (Nd, Yb):YAG transparent ceramics", *J. Appl. Phys.*, **108** (12) 123112 (2010).
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11. A. Lupei, V. Lupei, **C. Gheorghe**, L. Gheorghe, C. Aka, D. Vivien, "Cationic disorder effects in complex oxide laser materials and phosphors," *Opt. Mater.* **30** (11), 1677-1681 (2008).

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4. L. Gheorghe, V. Lupei, A. Lupei, **C. Gheorghe**, A. Achim, G. Aka, C. Varona, "Growth and characterization of  $Nd^{3+}$  doped strontium hexa - aluminates single crystals," JOAM, **8** (1), 82-85 (2006).
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2. A. Lupei, V. Lupei, **C. Gheorghe**, D. Vivien, G. Aka, P. Ascheoung, "Spectroscopic and structural properties of  $Nd^{3+}$  doped Strontium Lanthanum Aluminate laser crystals," J. Appl. Phys., **96** (6), 3057-3064 (2004).
1. A. Lupei, V. Lupei, T. Taira, A. Ikesue, **C. Gheorghe**, "Energy transfer processes of  $Nd^{3+}$  in Y<sub>2</sub>O<sub>3</sub> ceramic," J. Lumin. **102-103**, 72-76 (2003).

## **2. PROCEEDINGS OF INTERNATIONAL CONFERENCES**

(Presentations at International Meetings published in extended version)

9. F. Voicu, **C. Gheorghe**, C. Florica, "Preliminary Study in Preparation of Nd<sup>3+</sup>:YAG and Sm<sup>3+</sup>:Y<sub>2</sub>O<sub>3</sub> Transparent Ceramics," *Analele Universității de Vest din Timișoara, Seria Fizică*, **56**, 76-80 (2012).
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6. V. Lupei, A. Lupei, **C. Gheorghe**, A. Ikesue, "Spectroscopic characterization of ceramic laser materials for high-performance solid-state lasers", *Conference on Laser Source Technology for Defense and Security*, Orissa, Florida, Apr. 09-10, 2007; *Proc. SPIE*, Vol. **6552**, 65521D (2007).
5. A. Lupei, V. Lupei, **C. Gheorghe**, L. Gheorghe, E. Antic-Vidancev, D. Vivien, G. Aka, "Spectroscopic Bases for Optimisation of 900 nm Laser Emission of Nd<sup>3+</sup> in Strontium Lanthanum Aluminate", *International Conference on Lasers, Applications and Technologies*, St Petersburg, Russia, May 11-15, 2005; *Proc. SPIE*, vol. **6054**, 60540F (2006).
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3. A. Lupei, V. Lupei, **C. Gheorghe**, L. Gheorghe, D. Vivien, G. Aka, "Spectroscopic investigation of Nd<sup>3+</sup> in ASL", *Int. Conf. on Defects in Insulating Materials*, Riga 11-16 Iulie 2004. *Phys. Status Solidi (c) - Conferences and Critical Reviews*, **2** (1), 276-279 (2005).
2. D. Vivien, G. Aka, A. Lupei, V. Lupei, **C. Gheorghe**, "High resolution investigation of Nd<sup>3+</sup> doped strontium lanthanum aluminate", 7th Conference on Optics (ROMOPTO 2003) Constanta, Romania, Sept. 08-11, 2003; *Proc. SPIE*, vol **5581**, 287-291 (2004).
1. A. Lupei, E. Antic-Fidancev, G. Aka, D. Vivien, L. Gheorghe, **C. Gheorghe**, "Spectral and structural studies of activated oxoborates RCOB crystals for self non-linear laser processes," 7th Conference on Optics (ROMOPTO 2003) Constanta, Romania, Sept. 08-11, 2003; *Proc. SPIE*, vol **5581**, 114-122, (2004).

## **3. COMMUNICATIONS AT INTERNATIONAL CONFERENCES**

92. A. M. Voiculescu, S. Hau, G. Stanciu, **C. Gheorghe**, "Synthesis by solid state reaction and luminescence properties of LaAlO<sub>3</sub> perovskite phosphor doped with Rare Earths," TIM 20-21 International Physics Conference, 11-13 November 2021, Timișoara, Romania. poster presentation CMP 10.
91. S. Hau, **C. Gheorghe**, L. Gheorghe, G. Stanciu, "Optical properties of Pr<sup>3+</sup>-doped Ca<sub>3</sub>(Ta,Ga)<sub>5</sub>O<sub>12</sub> ceramic phosphors," TIM 20-21 International Physics Conference, 11-13 November 2021, Timișoara, Romania, poster presentation CMP-P3.
90. M. Greculeasa, A. Broasca, F. Voicu, S. Hau, G. Croitoru, C. Brandus, G. Stanciu, **C. Gheorghe**, L. Gheorghe, "RE-doped LGSB (RE = Nd, Yb) as new high performance near-infrared laser crystals," 2021 Conference on Lasers and Electro-Optics/Europe - European Quantum Electronics Virtual Conferences (CLEO@/Europe-EQEC 2021), 21-25 June 2021, poster presentation CA-P.7.
89. G. Stanciu, F. Voicu, C.-A. Brandus, E.-C. Tihon, S. Hau, **C. Gheorghe**, G. Croitoru, L. Gheorghe, "Development of a new sintering technique for fabricating high-quality Nd<sup>3+</sup>- and Yb<sup>3+</sup>-doped Y<sub>2</sub>O<sub>3</sub> Transparent Ceramics," 2021 Conference on Lasers and Electro-

Optics/Europe - European Quantum Electronics Virtual Conferences (CLEO@/Europe-EQEC 2021), 21-25 June 2021, poster presentation CE-P.4.

88. 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.
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