

## **LIST OF PUBLICATIONS**

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

15. 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).
14. C. Gheorghe, S. Hau, L. Gheorghe, A. Broasca, M. Greculeasa, F. Voicu, G. Stanciu, M. Enculescu, "Growth and spectroscopic properties of Ca<sub>3</sub>(Ta,Ga)<sub>5</sub>O<sub>12</sub>Pr<sup>3+</sup> single crystal as a promising new laser material in the visible domain," *Opt. Mater.* **150**, 115286 (2024).
13. 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).
12. A. Broasca, M. Greculeasa, F. Voicu, C. Gheorghe and L. Gheorghe, "Pure and Yb-Doped La<sub>x</sub>Y<sub>y</sub>Sc<sub>4-x-y</sub>(BO<sub>3</sub>)<sub>4</sub> Crystals: A Review of Recent Advances," *Crystals* **13**(2), 169 (2023).
11. C. Gheorghe, S. Hau, L. Gheorghe, F. Voicu, M. Greculeasa, A. Broasca, and G. Stanciu, "RE<sup>3+</sup>-Doped Ca<sub>3</sub>(Nb,Ga)<sub>5</sub>O<sub>12</sub> and Ca<sub>3</sub>(Li,Nb,Ga)<sub>5</sub>O<sub>12</sub> Crystals (RE = Sm, Dy, and Pr): A Review of Current Achievements," *Materials* **16**(1), 269 (2023).
10. C. Gheorghe, S. Hau, G. Stanciu, D. Avram, A. Broasca, L. Gheorghe, "Novel optical temperature sensors based on the emission of the Pr<sup>3+</sup> ions doped Ca<sub>3</sub>(M,Ga)<sub>5</sub>O<sub>12</sub> (M<sup>5+</sup> = Nb, Ta) garnet phosphors," *J. Alloys & Comps.* **922**, 166178 (2022).
9. A. Broasca, M. Greculeasa, F. Voicu, G. Stanciu, S. Hau, C. Gheorghe, L. Gheorghe, "Pr:LGSB as a new nonlinear optical crystal: Czochralski growth and optical characterization," *J. Alloys & Comp.* **908**, 164633 (2022).
8. 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).
7. 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).
6. 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).
5. 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).
4. 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).
3. 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).
2. L. Gheorghe, M. Greculeasa, A. Broasca, F. Voicu, G. Stanciu, K. N. Belikov, E. Yu. Bryleva, and O. Gaiduk, "Incongruent Melting La<sub>x</sub>Y<sub>y</sub>Sc<sub>4-x-y</sub>(BO<sub>3</sub>)<sub>4</sub> - LYSB Nonlinear Optical Crystal Grown by the Czochralski Method," *ACS Appl. Mat. Interfaces*, **11**(23), 20987-20994 (2019).

1. 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).

## **2. COMMUNICATIONS AT INTERNATIONAL CONFERENCES**

(Technical Digests, manuscripts up to 3 pages)

33. 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).
32. C. Gheorghe, S. Hau, A. Broasca, M. Greculeasa, F. Voicu, M. Enculescu, L. Gheorghe, "Ca<sub>3</sub>(Ta,Ga)<sub>5</sub>O<sub>12</sub>:Pr<sup>3+</sup> as potential laser crystal emitting in the blue and red spectral domains," International Conference on Crystal Growth and Epitaxy - ICCGE-20, 30 July - 04 August 2023, Naples, Italy; (poster presentation PS 3 - P15).
31. 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).
30. 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-20, 30 July - 04 August, Naples, Italy; (oral presentation Optical Crystals 6 - O4). 2023
29. 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.
28. 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).
27. 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).
26. L. Gheorghe, A. Broasca, M. Greculeasa, F. Voicu, G. Stanciu, S. Hau, C. Gheorghe, "Czochralski growth and characterization of newly developed Pr:LGSB nonlinear optical and laser crystal," 7<sup>th</sup> European Conference on Crystal Growth - ECCG7, 25-27 July 2022, Paris, France; oral presentation.
25. S. Hau, M. Greculeasa, A. Broasca, F. Voicu, G. Stanciu, D. Avram, M. Enculescu, L. Gheorghe, C. Gheorghe, "Pr<sup>3+</sup>-doped Ca<sub>3</sub>(Ta, Ga)<sub>5</sub>O<sub>12</sub> single crystal as potential laser material in the visible range," 7<sup>th</sup> European Conference on Crystal Growth - ECCG7, 25-27 July 2022, Paris, France; presentation P20.
24. S. Hau, C. Gheorghe, L. Gheorghe, F. Voicu, M. Greculeasa, A. Broasca, G. Stanciu, M. Enculescu, "Spectroscopic Characterizations of Pr<sup>3+</sup> and Dy<sup>3+</sup> doped Calcium Tantalum Gallium Garnet- Ca<sub>2.85</sub>Ta<sub>1.80</sub>Ga<sub>3.10</sub>O<sub>12</sub> Single Crystals," 20th International Balkan Workshop on Applied Physics and Materials Science (IBWAP 2022), July 12-15, Constanta, Romania; presentation S1-P7.
23. A. Broasca, M. Greculeasa, F. Voicu, G. Stanciu, S. Hau, C. Gheorghe, and L. Gheorghe, "Growth and optical properties of the newly developed Pr:LGSB bifunctional crystal,"

- 10th EPS-QEOD EUROPHOTON Conference, 28 Aug. - 2 Sept. 2022, Hannover, Germany; presentation TUE-P-1.8.
22. 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 Sept. 2022, Hannover, Germany; presentation TUE-P-1.9.
  21. 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.
  20. A. Broasca, M. Greculeasa, F. Voicu, G. Stanciu, S. Hau, C. Gheorghe, L. Gheorghe, "Czochralski Growth and Characterization of new Pr:LGSB Nonlinear Optical Crystal," International Conference on Laser, Plasma and Radiation - Science and Technology, June 7-10, 2022 Bucharest, Romania; poster presentation P2-04.
  19. S. Hau, C. Gheorghe, L. Gheorghe, F. Voicu, M. Greculeasa, A. Broasca, G. Stanciu, D. Avram, M. Enculescu, "Luminescence and optical thermometry of the  $\text{Pr}^{3+}$  ions doped  $\text{Ca}_3(\text{M,Ga})_5\text{O}_{12}$  ( $\text{M}^{5+} = \text{Nb, Ta}$ ) garnet phosphors," International Conference on Laser, Plasma and Radiation - Science and Technology, June 7-10, 2022 Bucharest, Romania; poster presentation P2-01.
  18. A. Broasca, M. Greculeasa, F. Voicu, G. Stanciu, S. Hau, C. Gheorghe, G. Croitoru, N. Pavel, L. Gheorghe, "LYSB and Yb-Doped LYBS crystals: Czochralski growth, optical characterization and laser emission performances," OSA Laser Congress Virtual Event, 03 Oct. - 07 Oct. 2021; oral presentation AT1A.6.
  17. 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, presentation CA-P.7 (poster presentation).
  16. C. A. Brandus, M. Greculeasa, A. Broasca, F. Voicu and L. Gheorghe, "Self-frequency-doubling Nd:LGSB laser passively Q-switched by  $\text{Cr}^{4+}$ :YAG saturable absorber," OSA Laser Congress, 13 - 16 Oct. 2020, oral presentation AF2A.6.
  15. C. A. Brandus, M. Greculeasa, A. Broasca, F. Voicu, L. Gheorghe, "Infrared and self-frequency-doubling emission characteristics of diode-pumped Nd:LGSB laser crystal," 9th EPS-QEOD Europhoton Virtual Conference, 30 August - 4 September 2020; poster presentation Tu-P1.11.
  14. 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.
  13. L. Gheorghe, M. Greculeasa, A. Broasca, F. Voicu, G. Stanciu, S. Hau, C. Gheorghe, C. Brandus, G. Croitoru, and N. Pavel, "Undoped, Yb- and Nd-doped LGSB Czochralski-grown nonlinear and laser crystals," Advanced Solid State Lasers Conference - ASSL 2019, 29 September 2019 - 03 October 2019, Vienna, Austria, presentation AM3A.2 (oral presentation).
  12. C. A. Brandus, A. Broasca, M. Greculeasa, L. Gheorghe, and T. Dascalu, "Ultrashort ps-order Pulse Generation from a SESAM Mode-Locked Czochralski-Grown Nd:LGSB Laser Crystal," OSA Laser Congress, Advanced Solid State Lasers Conference - ASSL 2019, 29 September 2019 - 03 October 2019, Vienna, Austria, presentation JTU3A.45 (poster presentation).
  11. A. Broasca, L. Gheorghe, M. Greculeasa, F. Voicu, G. Stanciu, S. Hau, C. Gheorghe, G. Croitoru, and N. Pavel, "Czochralski growth and characterization of pure and Yb-doped  $\text{La}_x\text{Y}_y\text{Sc}_{4-x-y}(\text{BO}_3)_4$  nonlinear and laser crystal," OSA Laser Congress, Advanced Solid State Lasers Conference - ASSL 2019, 29 September 2019 - 03 October 2019, Vienna, Austria, presentation JM5A.40 (poster presentation).
  10. L. Gheorghe, M. Greculeasa, A. Broasca, F. Voicu, G. Stanciu, S. Hau, and C. Gheorghe, "Yb<sup>3+</sup>-doped  $\text{La}_x\text{Y}_y\text{Sc}_{4-x-y}(\text{BO}_3)_4$  as bifunctional laser and nonlinear optical crystal," Excited States of

- Transitions Elements Conference - ESTE 2019, 08-13 September 2019, Kudowa Zdrój, Poland, presentation O-10 (oral presentation).
9. S. Hau, C. Gheorghe, L. Gheorghe, F. Voicu, M. Greculeasa, G. Stanciu, A. Broasca, and M. Enculescu, "Optical properties of  $\text{Pr}^{3+}$  ions doped garnet crystals," Excited States of Transitions Elements Conference - ESTE 2019, 08-13 September 2019, Kudowa Zdrój, Poland (poster presentation).
  8. 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, München, Germany, presentation CA-P.44 (poster presentation).
  7. M. Porębski, M. Kowalczyk, L. Gheorghe, M. Greculeasa, A. Broasca, F. Voicu, and J. Sotor, "Passively mode-locked self-frequency doubling Yb:LGSB laser," CLEO Europe - EQEC 2019 Conference, 23-27 June 2019, München, Germany, presentation CA-P.23 (poster presentation).
  6. L. Gheorghe, M. Greculeasa, A. Broasca, F. Voicu, G. Stanciu, S. Hau, C. Gheorghe, G. Croitoru, and N. Pavel, "Pure, Yb- and Nd-doped  $\text{La}_x\text{Gd}_y\text{Sc}_{4-x-y}(\text{BO}_3)_4$  Czochralski-grown nonlinear optical and laser crystals," TIM 19 Physics Conference, 29 - 31 May 2019, Timisoara, Romania, presentation CM-I02 (invited presentation).
  5. A. Broasca, L. Gheorghe, M. Greculeasa, F. Voicu, and G. Stanciu, "Czochralski growth and optical properties of nonlinear  $\text{La}_x\text{Y}_y\text{Sc}_{4-x-y}(\text{BO}_3)_4$  - LYSB single crystal," TIM 19 Physics Conference, 29 - 31 May 2019, Timisoara, Romania, presentation CM-P03 (poster presentation).
  4. F. M. Voicu, L. Gheorghe, M. Greculeasa, A. Broasca, C. Gheorghe, S. Hau, and G. Croitoru, " $\text{Nd}^{3+}$  doped  $\text{La}_x\text{Gd}_y\text{Sc}_{4-x-y}(\text{BO}_3)_4$  as bifunctional laser and nonlinear crystal," TIM 19 Physics Conference, 29 - 31 May 2019, Timisoara, Romania, presentation CM-P06 (poster presentation).
  3. M. Greculeasa, L. Gheorghe, A. Broasca, F. Voicu, C. Gheorghe, S. Hau, and G. Stanciu, "Czochralski growth and characterization of Yb-doped LYSB single crystals," TIM 19 Physics Conference, 29 - 31 May 2019, Timisoara, Romania, presentation CM-P11 (poster presentation).
  2. A. Broasca, B. Cojocaru, C. Colbea, D. Avram, Carmen Tiseanu, "Remarkable enhancement of emission intensity of  $\text{Eu-SnO}_2$  nanoparticles by Li addition," 18th International Balkan Workshop on Applied Physics and Materials Science – IBWAP 2018, 10-13 July 2018, Constanta, Romania, presentation S2 P9 (poster presentation).
  1. C. Colbea, D. Avram, A. Broasca, M. Florea, and C. Tiseanu, "Tetragonal to monoclinic phase tuning of Er doped nano-zirconia by lithium addition and its effect on near-infrared up-conversion emission," 18th International Balkan Workshop on Applied Physics and Materials Science - IBWAP 2018, 10-13 July 2018, Constanta, Romania, presentation S2 P6 (poster presentation).