

## 5- 2010-2020 Topics and scientific articles in peer reviewed journals

15 April 2021  
Georges Boulon  
Emeritus Professor  
Publications 1967-2020

Scientific articles in peer reviewed journals: 572  
Guest Editor of Special Issues in International Journals: 20  
Articles in Books of the Ettore Majorana Foundation, Erice, Sicily-NATO  
Science Series: 20  
Other articles in Books: 7  
General articles in French: 7  
Lessons in "Techniques de l'Ingénieur": 4  
Patents: 6

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## 2010-2020 Topics and scientific articles in peer reviewed journals

### A Special Issue

In honor of Professor Georges Boulon for his outstanding contributions to Optical Materials, Edited by Alok Srivastava  
Optical Materials-Special Issue.  
Volume 63, Pages 1-220 (January 2017)

### Main research topics and associated articles performed in recent years.

Rare earth/transition metal ions-doped laser glasses.  
Cooperation with Shanghai Institute of Optics and Fine Mechanics (SIOM)

#### Influence of Ce ion on optical properties and radiation resistance in Tm-Ce co-doped alumino-silica glasses

Yan Jiao, Mengting Guo, Malgorzata Guzik, Georges Boulon, Chunlei Yu, ChongYun Shao and Lili Hu

Published in Optical Materials X (May 2021)

#### Synthesization, characterization and applications of Fe<sub>3</sub>O<sub>4</sub>@C@[VCMIm][Tf<sub>2</sub>N] magnetic poly(ionic liquids) nano-adsorbent for simultaneous preconcentration and determination of sub-ppb Cr, Co, Zr, Sn, Pt and Au

Si Chen; Yongchun Xu; Yu Tang; Wei Chen, Shubin Chen; Lili Hu; Georges Boulon  
Microchemical Journal MICROC\_2020\_2993R1 (April 4, 2021)

#### Complexation-association-extraction-spectrophotometric determination of Pt cation based on multi-reagent analytical system with I<sup>-</sup> anion and 2-[2-[4-[(2-cyanoethyl)methylamino]phenyl]vinyl]-1,3,3-trimethyl-3H-indolium cation

Si Chen; Youkuo Chen; Yongchun Xu; Wei Chen ; Shubin Chen; Lili Hu; Georges Boulon  
Analytical Methods, 12, 5367-5379, 2020 published by the Royal Society of Chemistry.

**Pretreatment by recyclable Fe<sub>3</sub>O<sub>4</sub>@Mg/Al-CO<sub>3</sub>-LDH magnetic nano-adsorbent to dephosphorize for the determination of trace F<sup>-</sup> and Cl<sup>-</sup> in phosphorus-rich solutions**

Si Chen, Yongchun Xu, Yu Tang, Wei Chen, Shubin Chen, Lili Hu and Georges Boulon  
RSC Adv., 2020, **10**, 44361-44372  
DOI: 10.1039/D0RA07761E (Paper)

**193 nm Excimer Laser-Induced Color Centers in Yb<sup>3+</sup>/Al<sup>3+</sup>/P<sup>5+</sup>-Doped Silica Glasses**

Chongyun Shao, Mengting Guo, Yang Zhang, Li Zhou, Malgorzata Guzik, Georges Boulon, Chunlei Yu, Danping Chen and Lili Hu  
Journal of Non-Crystalline Solids, Volume 544, 15 September 2020, 12019

**Effect of B<sub>2</sub>O<sub>3</sub> addition on structure and properties of Yb<sup>3+</sup>/Al<sup>3+</sup>/B<sup>3+</sup>-co-doped silica Glasses**

Mengting Guo; Chongyun Shao; Yang Zhang; Jingbo Yu; Yan Jiao; Malgorzata Guzik; Georges Boulon; Jinjun Ren; Lili Hu  
Journal of the American Ceramic Society, accepted on 2 April 2020-First published:13 April 2020, <https://doi.org/10.1111/jace.17155>

**Compositional dependence of Stark splitting and spectroscopic properties in Yb<sup>3+</sup> doped lead silicate glasses**

Yan Sun, Xin Wang; Meisong Liao; Lili Hu; Malgorzata Guzik; Georges Boulon; Xia Li; Pei-Wen Kuan; Weiqing Gao; Tianxing Wang  
Journal of Non-Crystalline Solids, 532, 119890 (15 March 2020)  
<https://doi.org/10.1016/j.jnoncrysol.2020.119890>

**Impurities in large scale produced Nd-doped phosphate laser glasses. I. Cu ions**

Yongchun Xu, Meng Li, Congjuan Wang, Shunguang Li, Wei Chen, Lili Hu, Georges Boulon  
Optical Materials :X, Volume 4, December 2019, 100033

**Impurities in large scale produced Nd-doped phosphate laser glasses. II. Pt ion and Pt inclusion**

Si Chen, Youkuo Chen, Jimeng Cheng, Qinling Zhou, Wei Chen, Lili Hu, Georges Boulon  
Optical Materials :X, Volume 2, (May 2019) 100032

**Luminescence Properties of Yb<sup>3+</sup>-Doped Bismuthate Glass**

Wang Tao, Fan Huiyan, Zhao Guoying, Cheng Jimeng, ChenWei, Hu Lili, Guzik Malgorzata, Boulon Georges  
Chinese Journal of Laser, 44, n°9 (September 2017) 7 pages : 0 9 0 3 0 0 1 G 1 -7  
doi: 1 0 . 3 7 8 8 /CJL 2 0 1 7 4 4 . 0 9 0 3 0 0 1

**Suppression mechanism of radiation-induced darkening by Ce doping in Al/Yb/Ce doped silica glasses: Evidence from optical spectroscopy, EPR and XPS analyses**

Chongyun Shao, Wenbin Xu, Nadege Ollier, Malgorzata Guzik, Georges Boulon, Lu Yu, Lei Zhang, Chunlei Yu, Shikai Wang, and Lili Hu  
Journal of Applied Physics 120 (2016) 153101/1-153101-8

**Effects of F<sup>-</sup> on the optical and spectroscopic properties of Yb<sup>3+</sup>/Al<sup>3+</sup>-co doped silica glass**

By Wenbin Xu; Shikai Wang; Fengguang Lou; Suya Feng; Meng Wang; Qinling Zhou; Danping Chen; Lili Hu; Malgorzata Guzik; Georges Boulon  
Optical Materials, 42 (2015) 245-250

**Influence of Stark splitting levels on the lasing performance of Yb<sup>3+</sup>-doped phosphate and fluoro-phosphate glasses.**

Liyan Zhang, Tianfeng Xue, Dongbing He, Lili Hu, Malgorzata Guzik, Georges Boulon  
Optics Express (OSA), Vol. 23 Issue 2 (2015) pp.1505-1511

**Location of Yb<sup>3+</sup>, Er<sup>3+</sup> and Co<sup>2+</sup> dopants in laser glass ceramics composed**

**of MgAl<sub>2</sub>O<sub>4</sub> spinel nano-crystals embedded in SiO<sub>2</sub> glass**

G. Boulon<sup>1</sup>, Y. Guyot<sup>1</sup>, G. Alombert-Goget<sup>1</sup>, M. Guzik<sup>1,2</sup>, T. Epicier<sup>3</sup>, N. Blanchard<sup>1</sup>, L. Chen<sup>4</sup>, L. Hu<sup>4</sup>, W. Chen<sup>4</sup>

Journal of Materials Chemistry C (RSC, Royal Society of Chemistry), 2014, 2, 9385–9397

**Localization of Yb<sup>3+</sup>, Er<sup>3+</sup> and Co<sup>2+</sup> dopants in an optical glass ceramic of MgAl<sub>2</sub>O<sub>4</sub> spinel nano-crystals embedded in SiO<sub>2</sub> glass**

G. Boulon, Y. Guyot, G. Alombert-Goget, M. Guzik, T. Epicier, L. Chen, L. Hu, W. Chen  
NANO–OPTICS: PRINCIPLES ENABLING BASIC RESEARCH AND APPLICATIONS  
B. Di Bartolo, J. Collins, L. Silvestri, editors, published in the NATO Science Series, Erice, Sicily, Italy; July 4-19, 2015

Springer NATO Science for Peace and security series-B: Physics and Biophysics (2017)  
eBook ISBN 978-94-024-0850-8 DOI10.1007/978-94-024-0850-8

**Violet-green excitation for NIR luminescence of Yb<sup>3+</sup> ions in Bi<sub>2</sub>O<sub>3</sub>-B<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub> Ga<sub>2</sub>O<sub>3</sub> glasses**

By Weiwei Li, Jimeng Cheng, Guoying Zhao, Wei Chen, Lili Hu, Malgorzata Guzik, Georges Boulon

Optics Express (OSA), Vol. 22, Iss. 8, (2014) pp. 8831–8842

**Influence of the Al<sup>3+</sup> and P<sup>5+</sup> contents on the valence state and the distribution of Yb<sup>3+</sup> ions in silica glass prepared by sol-gel method**

By Shikai Wang, Fengguang Lou, Chunlei Yu, Qinling Zhou, Meng Wang, Suya Feng, Danping Chen, Lili Hu, Wei Chen, Malgorzata Guzik, Georges Boulon  
J. Mater. Chem. C (RSC), 2, (2014) 4406-4414

**Structural and spectroscopic properties of Yb<sup>3+</sup>-doped MgAl<sub>2</sub>O<sub>4</sub> nanocrystalline spinel**

By R.J. Wiglusz\*, G. Boulon, Y. Guyot, M. Guzik, D. Hreniak, W. Strek  
Dalton Transactions (RSC), 2014, 43, 7752-7759

**Comparative first-principles analysis of undoped and Co<sup>2+</sup>-doped α-ZnAl<sub>2</sub>S<sub>4</sub>**

By M.G. Brik, M. Nazarov, M.N. Ahmad Fauzi, L. Kulyuk, S. Anghel, K. Sushkevich, G. Boulon

Journal of Alloys and Compounds, Volume 330, 15 February 2013, Pages 103–108

**Comparative first-principle analysis of un-doped and V<sup>3+</sup>-doped α-ZnAl<sub>2</sub>S<sub>4</sub> spinel**

By M.G. Brik, M. Nazarov, M.N. Ahmad-Fauzi, L. Kulyuk, S. Anghel, K. Sushkevich, G. Boulon,

Journal of Luminescence 132 (2012) 2489-2494

**Effect of P<sub>2</sub>O<sub>5</sub> on the physical, structural and spectroscopic properties of sodium aluminosilicate glass**

By Jia Ding, Youkuo Chen, Wei Chen, Lili Hu, G Boulon  
Chinese Physics Letters, 10(7), (2012) 071602-1-4

**Fifty Years of Advances in Solid-State Laser Materials**

By Georges Boulon

INTERNATIONAL WORKSHOP: “SOLID STATE LASERS. 50 YEARS LATER”  
TARRAGONA, SPAIN, MARCH, 17-21 (2010) (Invited, plenary lecture)

Optical Materials, Volume 34, Issue 3, January 2012, Pages 499-512

**Radiative properties of alpha-ZnAl<sub>2</sub>S<sub>4</sub>:V spinel type single crystals**

By ANGHEL S., BOULON G., KULYUK L., SUSHKEVICH K  
Physica B-condensed Matter, vol. 406, p. 4600-4603 (2011)

**Determination of energy transfer and upconversion constants for Yb<sup>3+</sup>/Er<sup>3+</sup> codoped phosphate glass**

By Feng, Suya; Luan, Fei; Li, Shunguang; Chen, Li; Wang, Biao; Chen, Wei; Hu, Lili; Guyot, Y.; Boulon, G.

Chinese Optics Letters (2010), 8(2), 190-193

### **Spectroscopic characterization of Ti-doped $\alpha$ -ZnAl<sub>2</sub>S<sub>4</sub> spinel-type single crystals**

By Anghel, Sergiu; Boulon, Georges; Brenier, Alain; Fortin, Emery; Klokishner, Sophia; Koshchug, Dmitrii; Kulyuk, Leonid; Sushkevich, Konstantin  
Journal of Physics: Condensed Matter (2010), 22(5).

### **Raman and optical absorption spectroscopic investigation of Yb-Er codoped phosphate glasses containing SiO<sub>2</sub>**

By Chen, Youkuo; Wen, Lei; Hu, Lili; Chen, Wei; Guyot, Y.; Boulon, G.  
Chinese Optics Letters (2009), 7(1), 56-59.

### **Nd<sup>3+</sup>/Pr<sup>3+</sup>/Ce<sup>3+</sup>-doped 20Al(PO<sub>3</sub>)<sub>3</sub>-80LiF glass for potential VUV scintillator application. Cooperation with Institute of Laser Engineering (ILE), Osaka University and Tohoku University, Sendai, Japan**

#### **Investigations on the electric-dipole allowed $4f^25d \rightarrow 4f^3$ broadband emission of Nd<sup>3+</sup>-doped 20Al(PO<sub>3</sub>)<sub>3</sub>-80LiF glass for potential VUV scintillator application,**

Melvin John F. Empizo, Yuki Minami, Kohei Yamanoi, Toshihiko Shimizu, Masashi Yoshimura, Nobuhiko Sarukura, Takahiro Murata, Akihiro Yamaji, Akira Yoshikawa, Malgorzata Guzik, Yannick Guyot, Georges Boulon, Marilou Cadatal-Raduban,  
Journal of Alloys and Compounds, 856 (2020) 158096.

#### **Spectroscopic investigation of praseodymium and cerium co-doped 20Al(PO<sub>3</sub>)<sub>3</sub>-80LiF glass for potential scintillator applications**

Yuki Minami, Jacque Lynn Gabayno, Verdad Canila Agulto, Youwei Lai, Melvin John F. Empizo, Toshihiko Shimizu, Kohei Yamanoi, Nobuhiko, Sarukura, Akira Yoshikawa, Takahiro Murata, Malgorzata Guzik, Yannick Guyot, Georges Boulon, John A. Harrison, and Marilou Cadatal-Raduban  
Journal of Non-Crystalline Solids, 521, 119495 (2019)  
<https://doi.org/10.1016/j.jnoncrysol.2019.119495>

#### **Spectroscopic properties of Pr<sup>3+</sup>-doped 20Al(PO<sub>3</sub>)<sub>3</sub>-80LiF glasses as potential scintillators for neutron detection**

Melvin John F. Empizo, Marilou Cadatal-Raduban, Takahiro Murata, Yuki Minami<sup>1</sup>, Keisuke Kawano, Kohei Yamanoi, Toshihiko Shimizu, Nobuhiko Sarukura, Malgorzata Guzik, Yannick Guyot and Georges Boulon  
Journal of luminescence, 193 (2018) 13-21

### **Research of efficient and fast scintillator materials: The role of Ce<sup>4+</sup> in Ce<sup>3+</sup>-Mg<sup>2+</sup>-co-doped Gd<sub>3</sub>Al<sub>2</sub>Ga<sub>3</sub>O<sub>12</sub> garnet crystals.**

**Cooperation with Tohoku University, Sendai, Japan**

#### **Research of efficient fast scintillators. Evidence and XANES characterization of Ce<sup>4+</sup> in Ce<sup>3+</sup>, Mg<sup>2+</sup>-co-doped Gd<sub>3</sub>Al<sub>2</sub>Ga<sub>3</sub>O<sub>12</sub> garnet crystals**

Géraldine Dantelle, Georges Boulon, Yannick Guyot, Denis Testemale, Malgorzata Guzik, Shunsuke Kurosawa, Kei Kamada, Akira Yoshikawa  
Physica Status Solidi B, 257, n°8, (2020)1900510 (7 pages)  
<https://doi.org/10.1002/pssb.201900510>

#### **Research of efficient and fast scintillator garnet crystals. The role of Ce<sup>4+</sup> in Ce<sup>3+</sup>, Mg<sup>2+</sup>-co-doped Gd<sub>3</sub>Al<sub>2</sub>Ga<sub>3</sub>O<sub>12</sub> from spectroscopic and XANES characterizations.**

G. Boulon, Y. Guyot, M. Guzik, G. Dantelle, D. Testemale, S. Kurosawa, K. Kamada, A. Yoshikawa

in: LIGHT-MATTER INTERACTIONS TOWARDS THE NANOSCALE-A NATO ADVANCED STUDY INSTITUTE/ ed. by Baldassare Di Bartolo, John Collins. - Dordrecht : Springer (2020)- Erice, Sicily, Italy: July 20 August 4, 2019

**Development of novel rare earth doped fluoride and oxide scintillators for two dimensional imaging**

By A. Yoshikawa, T. Yanagida, Y. Yokota, K. Kamada, N. Kawaguchi, K. Fukuda, A. Yamazaki, K. Watanabe, A. Uritani, T. Iguchi, G. Boulon, M. Nikl  
Journal of Rare Earths, Vol. 29, No. 12, (Dec. 2011) 1178-1182

**Highly stable green and red up-conversion of LiYF<sub>4</sub>:Yb<sup>3+</sup>, Ho<sup>3+</sup> for potential application in color display.**

**Cooperation with Shanghai Institute of Optics and Fine Mechanics (SIOM)**

**The effect of temperature on green and red upconversion emissions of LiYF<sub>4</sub>:Yb<sup>3+</sup>, Ho<sup>3+</sup> and its application for temperature sensing**

Weichang Li, Lili Hu, Wei Chen, Shiyu Sun, Guanying Chen, Deyang Li, Malgorzata Guzik, Georges Boulon

Journal of Alloys and Compounds, JALCOM\_158813 PII  
S0925-8388(21)00220-6 (accepted on 15 January 2021)

**Highly stable green and red up-conversion of LiYF<sub>4</sub>:Yb<sup>3+</sup>, Ho<sup>3+</sup> for potential application in color display**

Weichang Li, Jixi Xu, Chongyun Shao, Shaohua Fan, Wei Chen, Malgorzata Guzik, Georges Boulon, and Lili Hu

Journal of Alloys and Compounds, 845 (2020) 155820

DOI: [10.1016/j.jallcom.2020.155820](https://doi.org/10.1016/j.jallcom.2020.155820)

**Fabrication and characterization of rare earth-doped optical transparent ceramics (Molybdates, tungstates)**

**Cooperation with University of Wroclaw (Poland) and MATEIS-INSA-Lyon**

**The challenge of fabrication of optical transparent ceramics from cubic nano-crystals Y<sub>6</sub>MoO<sub>12</sub> molybdate**

P. Sobota, M. Guzik, V. Garnier, G. Fantozzi, M. Sobota, E. Tomaszewicz, Y. Guyot, G. Boulon

Ceramics International, Volume 46, Issue 4, March 2020, Pages 4619-4633

<https://doi.org/10.1016/j.ceramint.2019.10.192>,

**Nd<sup>3+</sup> ion as a structural probe in studies of selected oxide host lattices: coupling the low-temperature high-resolution spectroscopic techniques with microscopy**

M. Guzik\*, M. Bieza, P. Sobota, M. Sobota, J. Legendziewicz, E. Tomaszewicz, Y. Guyot, G. Boulon, J. Pejchal, A. Yoshikawa

in: LIGHT-MATTER INTERACTIONS TOWARDS THE NANOSCALE-A NATO ADVANCED STUDY INSTITUTE/ ed. by Baldassare Di Bartolo, John Collins. - Dordrecht : Springer (2020)- Erice, Sicily, Italy: July 20—August 4, 2019

**Influence of synthesis route and grain size on structural and spectroscopic properties of cubic Nd<sup>3+</sup>-doped Y<sub>6</sub>MoO<sub>12</sub> nano and micro-powders as optical materials**

M. Sobota, P. Sobota, M. Bieza, M. Guzik, E. Tomaszewicz, Y. Guyot and G. Boulon  
Optical Materials, 90, 300-314 (2019)

**Research on the Yb<sup>3+</sup> ion activated cubic molybdates and molybdate-tungstates for optical transparent ceramics;**

Guzik M., Bieza M., Tomaszewicz E., Guyot Y., Boulon G.,  
in: Nano-optics for enhancing light-matter interactions on a molecular scale : plasmonics,  
photonic materials and sub-wavelength resolution / ed. by Baldassare Di Bartolo, John  
Collins. - Dordrecht : Springer (2018) 315-354- Erice, Sicily, Italy: July 20—August 3,  
2017)

**Yb<sup>3+</sup> rare earth structural probe and correlation between morphology  
and spectroscopic properties of La<sub>2</sub>Mo<sub>2</sub>O<sub>9</sub> and mixed cubic La<sub>2</sub>MoWO<sub>9</sub>. Comparative  
analysis of translucent ceramics.**

M. Bieza, M. Guzik, E. Tomaszewicz, Y. Guyot, G. Boulon

Journal of the European Ceramic Society, 38, Issue 9, August 2018, 3217-3234

**Photophysical properties and ab initio HF and DFT calculations of the structure  
and spectroscopy of axially chloro substituted Yb(III) monophthalocyanines in different  
systems**

Yu. Gerasymchuk , M. Guzik , R. Lisiecki , M. Sobczyk , J. Jański , A. Koll , G. Boulon , J.  
Legendziewicz,

Journal of Luminescence 193 (2018) 84–89

**Toward optical ceramics based on Yb<sup>3+</sup> rare earth ions-doped mixed molybdatotungstates – Part1: structural characterization**

M. Bieza,<sup>a</sup> M. Guzik,<sup>a,\*</sup> E. Tomaszewicz,<sup>b</sup> Y. Guyot,<sup>c</sup> K. Lebbou,<sup>c</sup> E. Zych,<sup>a</sup> G. Boulon

Journal of Physical Chemistry C (2017) 121, 13290-13302 IF: 4.536, DOI:

10.1021/acs.jpcc.7b00746

**Toward optical ceramics based on Yb<sup>3+</sup> rare earth ions-doped mixed  
Molybdatotungstates – Part2: spectroscopic characterization**

M. Bieza,<sup>a</sup> M. Guzik,<sup>a,\*</sup> E. Tomaszewicz,<sup>b</sup> Y. Guyot,<sup>c</sup> G. Boulon

Journal of Physical Chemistry C (2017) 121, 13303-13313, IF: 4.536, DOI:

10.1021/acs.jpcc.7b00746

**The size effect on the energy transfer in Bi<sup>3+</sup>-Eu<sup>3+</sup> co-doped GdVO<sub>4</sub>  
nanocrystals**

Lenczewska, Katarzyna, Gerasymchuk, Yuriy, Vu, Nguyen, Liem, Nguyen, Boulon,  
Georges, Hreniak, Dariusz

Journal of Materials Chemistry C, 5 (2017) 3014-3023 DOI: 10.1039/C6TC04660F

**Cubic Yb<sup>3+</sup>-activated Y<sub>6</sub>MoO<sub>12</sub> micro-powder optical material operating in  
NIR region**

M. Bieza<sup>1</sup>, M. Guzik<sup>1,\*</sup>, E. Tomaszewicz<sup>2</sup>, Y. Guyot<sup>3</sup>, G. Boulon

Optical Materials, 63 (2017) 3-12

**Nd<sup>3+</sup>, Eu<sup>3+</sup> and Yb<sup>3+</sup> ions as structural probes in the scheelite-type cadmium  
molybdates with vacancies**

M. Guzik<sup>\*</sup>, J. Legendziewicz, E. Tomaszewicz, Y. Guyot, G. Boulon

NANO-OPTICS: PRINCIPLES ENABLING BASIC RESEARCH AND APPLICATIONS

B. Di Bartolo, J. Collins, L. Silvestri, editors, published in the NATO Science Series,  
Erice, Sicily, Italy; July 4-19, 2015

Springer NATO Science for Peace and security series-B: Physics and Biophysics (2017)

eBook ISBN 978-94-024-0850-8 DOI10.1007/978-94-024-0850-8

**Spectroscopic study of radiative intra-configurational 4f → 4f transitions in  
Yb<sup>3+</sup>-doped materials using high hydrostatic pressure**

Agata Kaminska, Adrian Kozanecki, Mariola O Ramirez, Luisa E Bausa, Georges Boulon,  
Marco Bettinelli, Michal Bockowski, Andrzej Suchocki,

J. of Luminescence 169 (2016) 507–515

**Spectral characteristic and crystal-field calculations for new Er(III) phosphor  
of the type [Er(SP)]- (where SP=C<sub>6</sub>H<sub>5</sub>S(O)<sub>2</sub>NP(O)OCH<sub>3</sub>)<sub>2</sub>-)**

M. Sobczyk, K. Korzeniowski, M. Guzik, V.M. Amirkhanov, V.A. Trush, P. Gawryszewska, Y. Guyot, G. Boulon, W. Stręk, J. Legendziewicz, J. of Luminescence 169 (2016) 777–781

**Spectroscopic properties, concentration quenching and Yb<sup>3+</sup> site occupations in vacancied scheelite-type molybdates**

M. Guzik, E. Tomaszewicz, Y. Guyot, J. Legendziewicz and G. Boulon J. of Luminescence, 169 (2016) 755–764

**Eu<sup>3+</sup> luminescence from different sites in scheelite-type cadmium molybdate red phosphor with vacancies**

M. Guzik, E. Tomaszewicz, Y. Guyot, J. Legendziewicz, G. Boulon Journal of Materials Chemistry C, 3 (2015) 8582--8594

**Structural and spectroscopic characterizations of new vacancied Cd<sub>1-3x</sub>Nd<sub>2x</sub>MoO<sub>4</sub> scheelite-type molybdates as potential optical materials**

Malgorzata Guzik, Elzbieta Tomaszewicz, Yannick Guyot, Janina Legendziewicz and Georges Boulon, Journal of Materials Chemistry C, 2015, 3, 4057 – 4069

**Photophysical and theoretical studies of structure and spectroscopic behaviour of axially substituted Yb(III) mono-phthalocyanines in different media**

Yu. Gerasymchuk, L. Tomachynski, M. Guzik, A. Koll, J. Jański, Y. Guyot, W. Stręk, G. Boulon, J. Legendziewicz, Journal of Photochemistry and Photobiology A: Chem. (2015) 309, 65-71

**Nd<sup>3+</sup> dopant influence on the structural and spectroscopic properties in microcrystalline La<sub>2</sub>Mo<sub>2</sub>O<sub>9</sub> (LAMOIX) dilanthanum dimolybdate**

By M. Guzik, M. Bieza, E. Tomaszewicz, Y. Guyot, E. Zych and G. Boulon Optical Materials, 41 (2015) 21-31

**Development of Nd<sup>3+</sup>-doped Monoclinic Dimolybdates La<sub>2</sub>Mo<sub>2</sub>O<sub>9</sub> as Optical Materials**

By M. Guzik, M. Bieza, E. Tomaszewicz, Y. Guyot and G. Boulon Zeitschrift fur Naturforschung, 69b (2014) 193-204

**Structural and spectroscopic characterizations of two promising Nd-doped monoclinic or tetragonal laser tungstates**

By M. Guzik<sup>a,\*</sup>, E. Tomaszewicz<sup>b</sup>, Y. Guyot<sup>c</sup>, J. Legendziewicz<sup>a</sup>, G. Boulon<sup>c</sup> J. Mater. Chem. (RSC), 2012, 22, 14896-14906

**Spectroscopic behavior of Nd<sup>3+</sup> in a new nanocrystalline ZnY<sub>4</sub>W<sub>3</sub>O<sub>16</sub> tungstate**

By M. Guzik, J. Cybińska, E. Tomaszewicz, J. Legendziewicz, Y. Guyot, W. Stręk, G. Boulon Optical Materials, Volume 34, Issue 2, December 2011, Pages 487-495

**Rare earth ions-doped calcium aluminosilicate glass for tunable white lighting devices. Cooperation with Dourados University and Maringa University (Brazil)**

**Combination of broad emission bands of Ti<sup>3+,4+</sup>/ Eu<sup>2+,3+</sup> co-doped OH- free low silica calcium aluminosilicate glass as emitting phosphors for white lighting devices**

Mauro Baesso, Claudio Morassuti; Simone Finoto; Junior R Silva; Luiz A Nunes; Yannick Guyot; Georges Boulon; Antonio Bento; Jurandir Rohling; Sandro Lima; Luis Andrade. Journal of Alloys and Compounds, accepted on 2 June 2020. <https://doi.org/10.1016/j.jallcom.2020.155898>

**Eu<sup>2+,3+</sup>/Pr<sup>3+</sup> co-doped calcium aluminosilicate glass for tunable white lighting devices**

C.Y. Morassuti<sup>a</sup>, L.H.C. Andrade<sup>a</sup>, J.R. Silva<sup>a</sup>, A.C. Bento<sup>b</sup>, M.L. Baesso<sup>b</sup>, F.B. Guimarães<sup>b</sup>, J.H. Rohling<sup>b</sup>, A. C. Bento, L.A.O. Nunes<sup>c</sup>, G. Boulon<sup>d</sup>, Y. Guyot<sup>d</sup>, and S.M. Lima<sup>a\*</sup>  
Journal of Alloys and Compounds, Volume 817, 15 March 2020, 153319

**Spectroscopic investigation and interest of Pr<sup>3+</sup>-doped calcium aluminosilicate glass**

Claudio Yamamoto Morassuti, Luis Humberto Andrade, Junior Silva, Mauro Luciano Baesso, Francine Guimarães, Jurandir Rohling, Luiz Antonio Nunes, Georges Boulon, Yannick Guyot, Sandro Lima,  
Journal of Luminescence, [210](#) (June 2019) 376-382

**Eu<sup>2+</sup>-doped OH<sup>-</sup> free calcium aluminosilicate glass: A phosphor for smart lighting**

S. Lima, L. Andrade, A. Pereira, R. Silva, A. Farias, A. Medina, M. Baesso, L. Nunes, Y. Guyot and G. Boulon  
Journal of Luminescence, Volume 143, November 2013, Pages 600-604

**Broad combined orange-red emissions from Eu<sup>2+</sup> and Eu<sup>3+</sup>-doped low silica calcium aluminosilicate glass**

By S. M. Lima<sup>1,\*</sup>, L. H. C. Andrade<sup>1</sup>, J. R. Silva<sup>2</sup>, A. N. Medina<sup>2</sup>, M. L. Baesso<sup>2</sup>, Y. Guyot<sup>3</sup> and G. Boulon<sup>3</sup>  
OPTICS EXPRESS, 20, Iss. 9, Apr. 23, 2012, 12658-12665

**Tunable light emission and similarities with garnet structure of Ce-doped LSCAS glass for white-light devices**

By L.H.C. Andrade, S.M. Lima, M.L. Baesso, A. Novatski, J.H. Rohling, Y. Guyot, G. Boulon  
Journal of Alloys and Compounds, Volume 510, Issue 1 (2012) 54-59

**Tunable color temperature of Ce<sup>3+</sup>/Eu<sup>2+,3+</sup> co-doped low silica aluminosilicate glasses for white lighting**

By A. C. P. Rocha<sup>1\*</sup>, L. H. C. Andrade<sup>1\*</sup>, S. M. Lima<sup>1</sup>, A. M. Farias<sup>2</sup>, A. C. Bento<sup>2</sup>, M. L. Baesso<sup>2</sup>, Y. Guyot<sup>3</sup> and G. Boulon<sup>3</sup>  
Optics Express 23 April 2012 / Vol. 20, No. 9 / OPTICS EXPRESS Vol. 20, pp. 10034-10041 and The Virtual journal of Biorganic Materials, Vol.7, Iss. 6, May 25, 2012

**Spectroscopic Properties, Concentration Quenching and Laser Investigations of Yb<sup>3+</sup>-Doped Calcium Aluminosilicate Glasses**

By Y. Guyot, A. Steimacher, M.P. Belançon, A. N. Medina, L. Baesso, S. Lima, L. H. C. Andrade, A. Brenier, A.M. Jurdyc, G. Boulon  
JOSA B, Vol. 28, Issue 10, pp. 2510-2517 (2011)

**High values of gain cross section and luminescence quantum efficiency in OH(-)-free Ti<sup>3+</sup>-doped low-silica calcium aluminosilicate glass**

By Lima S M; Silva J R; Andrade L H C; Novatski A; Medina A N; Bento A C; Baesso M L; Guyot Y; Boulon G  
Optics letters (2010), 35(7), 1055-7

**A step forward towards smart white lighting: combination of glass phosphor and blue LEDs**

By Andrade, L. H.; Lima, S. M.; Novatski, A.; Steimacher, A.; Neto, A. M.; Bento, C.; Baesso, M. L.; Guyot, Y.; Boulon, G.  
ECS Transactions (2009), 25(9, Physics and Chemistry of Luminescent Materials), 237-246.

**Spectroscopic assignments of Ti<sup>3+</sup> and Ti<sup>4+</sup> in titanium doped OH- free low-silica calcium aluminosilicate glass and role of structural defects on the observed long lifetime and high fluorescence of Ti<sup>3+</sup> ions**

By Andrade, L. H. C.; Lima, S. M.; Novatski, A.; Neto, A. M.; Bento, A. C.; Baesso, M. L.; Gandra, F. C. G.; Guyot, Y.; Boulon, G.  
Physical Review B: Condensed Matter and Materials Physics (2008), 78 (22), 224202/1-224202/11

### **Other phosphate laser glasses**

#### **Spectroscopic properties of Er<sup>3+</sup>-doped antimony oxide glass**

Ouannes, K., Soltani, M. T., Poulain, M., Boulon, G., Alombert-Goget, G., Guyot, Y., A. Pillonnet, Lebbou, K. (2014)

Journal of Alloys and Compounds, 2014, 603, 132–135. doi:10.1016/j.jallcom.2014.02.008

#### **Structural and optical studies of Yb<sup>3+</sup>, Er<sup>3+</sup> and Er<sup>3+</sup>/Yb<sup>3+</sup> co-doped phosphate glasses**

S. Hraiech, M. Ferid, Y. Guyot, G. Boulon

Journal of Rare Earths, Volume 31, Issue 7, July 2013, Pages 685-693

#### **Near infrared and charge transfer luminescence of trivalent ytterbium in KLa(PO<sub>3</sub>)<sub>4</sub> powders**

By M. Ferhi, K. Horchani-Naifer, S. Hraiech, M. Férid, Y. Guyot, G. Boulon

Optics Communications, Volume 285, Issue 12, Pages 2769-2976 (1 June 2012)

### **Nd<sup>3+</sup>-doped LuPO<sub>4</sub> optical materials obtained by ionic liquid assisted synthesis route Cooperation with University of Wroclaw (Poland)**

#### **Nano-crystalline Nd<sup>3+</sup>-doped LuPO<sub>4</sub> optical materials obtained by ionic liquid assisted synthesis route**

Kacper A. Prokop, Małgorzata Guzik, Yannick Guyot, Georges Boulon, Magdalena Wilk-Kozubek, Marcin Sobczyk, Anja-Verena Mudring, Joanna Cybinska

Materials Science & Engineering B, submitted on 22 December 2020

#### **Combining XRD and SEM techniques with site selective spectroscopy for structural and spectroscopic studies of Nd<sup>3+</sup>-doped LuPO<sub>4</sub> micro-powders**

K.A. Prokop, M. Guzik, Y. Guyot, G. Boulon, J. Cybińska

Ceramics International 46 (2020)26350-26360

#### **Nano/micro powders of Nd<sup>3+</sup>-doped YPO<sub>4</sub> and LuPO<sub>4</sub> under structural and spectroscopic considerations. An abnormal temporal behavior of f-f photoluminescence.**

J.PawłóW, K.A. Prokop, M. Guzik, Y.Guyot, G.Boulon, J. Cybińska

Journal of Luminescence, accepted on 16 February 2021

#### **Design of LaPO<sub>4</sub>:Nd<sup>3+</sup> materials by using ionic liquids**

J. Cybinska, M. Guzik, C. Lorbeer, E. Zych, Y. Guyot, G. Boulon, A.-V. Mudring

Optical Materials, 63 (2017) 76-87

#### **The size effect on the energy transfer in Bi<sup>3+</sup>-Eu<sup>3+</sup> co-doped GdVO<sub>4</sub> nanocrystals**

Lenczewska, Katarzyna, Gerasymchuk, Yuriy, Vu, Nguyen, Liem, Nguyen, Boulon, Georges, Hreniak, Dariusz

Journal of Materials Chemistry C, 5 (2017) 3014-3023 DOI: 10.1039/C6TC04660F

#### **Infrared and charge transfer luminescence of Yb<sup>3+</sup>-doped LaPO<sub>4</sub> at room temperature**

By M. Ferhi, K. Horchani-Naifer, S. Hraiech, M. Ferid, Y. Guyot, G. Boulon

Radiation Measurements, Volume 46, Issue 10, October 2011, Pages 1033-1037

#### **Synthesis and Nd<sup>3+</sup> luminescence properties of ALa<sub>1-x</sub>Nd<sub>x</sub>P<sub>4</sub>O<sub>12</sub> (A=Li, Na, K,**

### **Rb) tetraphosphate nanocrystals**

L.Marciniak<sup>1</sup>, W. Strek, Y.Guyot, D. Hreniak, G. Boulon

J. Phys. Chem. C, (ACS, American Chemical Society) 119 (9), (2015) 5160–5167

### **Yb/Nd-doped Lu<sub>2</sub>O<sub>3</sub> sesquioxides as laser ceramics or laser crystals**

#### **Spectroscopy of C<sub>3i</sub> and C<sub>2</sub> sites of Yb<sup>3+</sup>-doped Lu<sub>2</sub>O<sub>3</sub> sesquioxide either as ceramics or crystal**

By Y. Guyot, M. Guzik, G. Alombert-Goget, J. Pejchal, A. Yoshikawa, A. Ito, T. Goto, G. Boulon

J. of Luminescence, 170 (2016) 513-519

#### **Spectroscopy of C<sub>3i</sub> and C<sub>2</sub> sites of Nd<sup>3+</sup>-doped Lu<sub>2</sub>O<sub>3</sub> sesquioxide either as ceramics or crystal**

By M. Guzik, G. Alombert-Goget, Y. Guyot, J. Pejchal, A. Yoshikawa, A. Ito, T. Goto, G. Boulon

Journal of Luminescence 169 (2016) 606–611

#### **Nd<sup>3+</sup>-doped Lu<sub>2</sub>O<sub>3</sub> transparent sesquioxide ceramics elaborated by the Spark Plasma Sintering (SPS) method.**

##### **Part 1: structural, thermal conductivity and spectroscopic characterization**

By G. Alombert-Goget, Y. Guyot, M. Guzik, G. Boulon, A. Ito, T. Goto, A. Yoshikawa, M. Kikuchi

Optical Materials, 41 (2015) 3-11

#### **Nd<sup>3+</sup>-doped Lu<sub>2</sub>O<sub>3</sub> transparent sesquioxide ceramics elaborated by the Spark Plasma Sintering (SPS) method.**

##### **Part 2: First laser output results and comparison with Nd<sup>3+</sup>-doped Lu<sub>2</sub>O<sub>3</sub> and Nd<sup>3+</sup>-Y<sub>2</sub>O<sub>3</sub> ceramics elaborated by a conventional method.**

By G. Toci, M. Vannini, M. Ciofini, A. Lapucci, A. Pirri, A. Ito, T. Goto, A. Yoshikawa, A. Ikesue, G. Alombert-Goget, Y. Guyot, G. Boulon

Optical Materials, 41 (2015) 12–16

#### **Structural investigations of un-doped Lu<sub>2</sub>O<sub>3</sub> as Single Crystal and Polycrystalline Transparent Ceramic**

By Malgorzata Guzik, Milosz Siczek, Tadeusz Lis, Jan Pejchal, Akira Yoshikawa, Akihiko Ito, Takashi Goto, Georges Boulon

Crystal Growth and Design, (ACS publications) 14 (2014) 3327–3334

#### **Scintillation Properties of Nd<sup>3+</sup>-Doped Lu<sub>2</sub>O<sub>3</sub> Ceramic in the Visible and Infra Red Region**

Shunsuke Kurosawa, Liqiong An, Akihiro Yamaji, Akira Suzuki, Yuui Yokota, Kenji Shirasaki, Yamamura Tomoo, Akihiko Ito, Takashi Goto, Georges Boulon and Akira Yoshikawa

IEEE Transactions On Nuclear Science, vol. 61, p. 316-319 (2014)

### **Yb<sup>3+</sup> distribution in Yb<sup>3+</sup>-doped YAG laser ceramics**

#### **Yb<sup>3+</sup> ions distribution in YAG nano-ceramics analyzed by both optical and TEM-EDX techniques**

By G. Boulon, Y. Guyot, M. Guzik, T. Epicier, P. Gluchowski, D. Hreniak, W. Strek  
J. Phys. Chem. C (RSC), 2014, 118 (28), pp 15474–15486.

#### **Poly- and single crystalline Yb<sup>3+</sup>-Er<sup>3+</sup>-co-doped YAG: preparations, TEM EDX characterization and spectroscopic properties**

By Jan Hostaša<sup>ai</sup>, Laura Esposito<sup>a</sup>, Annie Malchère<sup>b</sup>, Thierry Epicier<sup>b</sup>, Angela Pirri<sup>c</sup>, Matteo Vannini<sup>d</sup>, Guido Toci<sup>d</sup>, Enrico Cavalli<sup>e</sup>, Guillaume Alombert-Goget<sup>f</sup>, Yannick Guyot<sup>f</sup>, Georges Boulon<sup>f</sup>, Malgorzata Guzik<sup>g</sup>, Akira Yoshikawa<sup>h</sup>  
Journal of Materials Research (JMR) 29 n°19 (2014) 2288-2296

#### **Fabrication and laser performance of multilayered YAG-Yb<sup>3+</sup>:YAG ceramics**

By Laura Esposito<sup>1</sup>, Jan Hostasa<sup>1,5</sup>, Andreana Piancastelli<sup>1</sup>, Guido Toci<sup>2</sup>, Angela Pirri<sup>2</sup>, Matteo Vannini<sup>2</sup>, Thierry Epicier<sup>3</sup>, Annie Malchère<sup>3</sup>, Guillaume Alombert-Goget<sup>4</sup>, Georges Boulon<sup>4</sup>

J. Mater. Chem. C (RSC), 2014, 2, 10138–10148

#### **An approach in the structural and spectroscopic analysis of Yb<sup>3+</sup>-doped YAG nano-ceramics by conjugation of TEM-EDX and optical techniques**

By G. Boulon, Y. Guyot, M. Guzik, T. Epicier, P. Gluchowski, D. Hreniak, W. Strek Erice, Sicily, Italy; July 4-19, 2013

NATO Science for Peace and security series-B: Physics and Biophysics

Nano-structures for optics and photonics.

Optical Strategies for Enhancing Sensing, Imaging, Communication, and Energy Conversion

B. Di Bartolo and J. Collins, Springer (2014) 285-307

#### **Is there segregation of rare earth ions in garnet optical ceramics?**

Nano-optics for enhancing light-matter interactions on a molecular scale

B. Di Bartolo and J. Collins editors, published in the NATO Science Series,

Springer Series B Physics and Biophysics, (2013) 333-345

By G. Boulon, T. Epicier, W. Zhao, M. Guzik, Y. Pan, B. Jiang

#### **Gain structuration in dual-wavelength Nd:YSAG ceramic lasers**

By Lionel Jaffres, Alexis Labruyere, Vincent Couderc, Julie Carreaud, Alexandre Maitre, Remy Boulesteix, Alain Brenier, Georges Boulon, Yannick Guyot, Yoel Rabinovitch, Christian Salle.

Optics Express (OSA) Vol. 20, pp. 25596-25602 (2012)

#### **Spatial distribution of the Yb<sup>3+</sup> rare earth ions in Y<sub>3</sub>Al<sub>5</sub>O<sub>12</sub> and Y<sub>2</sub>O<sub>3</sub> optical ceramics as analyzed by TEM**

By Thiery Epicier, Georges Boulon, Wei Zhao, Malgorzata Guzik, Benxue Jiang, Akio Ikesue, Laura Esposito

J. Mater. Chem. (RSC), 2012, 22, 18221–18229

#### **Wavelength switching in Nd:YSAG ceramic laser induced by thermal effect**

By J. Carreaud, A. Labruyère, L. Jaffres, V. Couderc, A. Maître, R. Boulesteix, A. Brenier, G. Boulon, Y. Guyot, Y. Rabinovitch, and C. Salle

Laser Phys. Lett. 9, No. 5, 344–349 (2012)

#### **Laser and thermal properties of Nd:YGD<sub>2</sub>Sc<sub>2</sub>Al<sub>2</sub>Ga O<sub>12</sub> garnet ceramic**

By A. Brenier, G. Alombert-Goget, Y. Guyot, G. Boulon

Laser Phys. Lett. 9, No. 10, 697–703 (2012)

#### **TEM characterization of amorphous and crystalline silicate phases at grain boundaries in Yb:YAG laser ceramic**

By Laura Esposito, Marina Serantoni, Andreana Piancastelli, Thierry Epicier, Daniele Alderighi, Angela Pirri, Guido Toci, Matteo Vannini, Sergiu Anghel, Georges Boulon

Journal of the European Ceramic Society, volume 32, issue 10, 2012, pp. 2273 – 2281

#### **Quantitative analysis of an Yb<sup>3+</sup>-doped YAG**

T. Epicier, T.J. Konno, K. Sato, G. Boulon

EMC2012 (15<sup>th</sup> Electron Microscopy Congress), Manchester, UK, 16-22 septembre 2012, p.127-128 in 'emc2012', vol. 1: Physical Sciences: Applications ed. D.J. Stokes et M. Rainforth, RMS: London, (2012)

### **Absence of Segregation of Host Cations in the (Gd,Y)<sub>3</sub>Al<sub>5</sub>O<sub>12</sub> Mixed Garnet Transparent Ceramics**

By Georges Boulon, Valery I. Chani, Wei Zhao, Thierry Epicier, Takayuki Yanagida, Akira Yoshikawa

Jpn. J. Appl. Phys. 50 (2011) 090207 (3 pages)

### **Correlation between Segregation of Rare Earth Dopants in Melt Crystal Growth and Ceramic Processing for Optical Applications**

Valery I. Chani, Georges Boulon, Wei Zhao, Takayuki Yanagida, and Akira Yoshikawa  
Japanese Journal of Applied Physics 49 (2010) 075601

### **Ce<sup>3+</sup> dopant segregation in Y<sub>3</sub>Al<sub>5</sub>O<sub>12</sub> optical ceramics**

By W. Zhao, S. Anghel, C. Mancini, D. Amans, G. Boulon, T. Epicier, Y. Shi, X.Q. Feng, Y.B. Pan, V. Chani, A. Yoshikawa,

Optical Materials 33 (2011) 684–687

### **Spectroscopy of gadolinium gallium garnet crystals doped with Yb<sup>3+</sup> revisited**

By Kaminska, A.; Brik, M. G.; Boulon, G.; Karbowiak, M.; Suchocki, A.

Journal of Physics: Condensed Matter (2010), 22(25), 255501/1- 255501/

### **Evidence of the inhomogeneous Ce<sup>3+</sup> distribution across grain boundaries in transparent polycrystalline Ce<sup>3+</sup>-doped (Gd,Y)<sub>3</sub>Al<sub>5</sub>O<sub>12</sub> garnet optical ceramics**

By Zhao, Wei; Mancini, Cedric; Amans, David; Boulon, Georges; Epicier, Thierry; Min, Yin; Yagi, Hideki; Yanagitani, Takagimi; Yanagida, Takayuki; Yoshikawa, Akira

Japanese Journal of Applied Physics 49 (2010) 022602

### **Size-effect on concentration quenching in Yb<sup>3+</sup>-doped Y<sub>3</sub>Al<sub>5</sub>O<sub>12</sub> nano-crystals**

By Amami, J.; Hreniak, D.; Guyot, Y.; Zhao, W.; Boulon, G.

Journal of Luminescence 2010; 130 (4) :603-610

### **Optimization of the gain in Yb<sup>3+</sup>-doped cubic laser crystals of 99.99% purity**

By Georges Boulon, Yannick Guyot, Akira Yoshikawa

Journal of Rare Earths, Volume 27, Issue 4, August 2009, Pages 616-618

### **Evaluation of laser potentialities from concentration quenching analysis in Yb<sup>3+</sup>-doped cubic crystals**

By Boulon, G.; Guyot, Y.; Yoshikawa, A.

ECS Transactions (2009), 25(9, Physics and Chemistry of Luminescence Materials), 271-275.

### **CO-OPERATIVE PROCESSES IN Yb<sup>3+</sup>-DOPED MATERIALS**

By Boulon, Georges

Frontier development in optics and spectroscopy, Erice, June 2007

B. Di Bartolo and O.Forte editors, (2008)

### **Yb<sup>3+</sup>-doped CaF<sub>2</sub> fluoride as an example of our research approach in solid-state laser-type crystals**

By Boulon, Georges

NATO Science Series, II: Mathematics, Physics and Chemistry (2006), 231

(Advances in Spectroscopy for Lasers and Sensing), 83-102

## **Apatites**

### **Lead (II) luminescent properties in different apatites**

By Mehnaoui, M.; Ternane, R.; Panczer, G.; Trabelsi-ayadi, M.; Boulon, G.

Egyptian Journal of Analytical Chemistry (2010), 19, 87-93