

4th International Workshop on
**PHOTOLUMINESCENCE IN RARE EARTHS:
PHOTONIC MATERIALS AND DEVICES (PRE'12)**

Tuesday, March 27, 2012

18:00 – **Registration**

18:10 – 20:00 **Reception** at Cafeteria "Camphora" in Main Campus

Scientific Program in *Shiran-Kaikan*

Wednesday, March 28 *Inamori-Hall*

9:00 – 9:30 **Registration**

9:30 – 10:00 **Opening Ceremony**

Session I. Chair: S. Tanabe

10:00 – 10:45 **Plenary Talk**

“Rare Earth Doped Laser Ceramics: Challenge for Super High Field Science”

K. Ueda

University of Electro-Communications, Chofu, Tokyo, Japan

10:45–11:15 **I-1 “New avenues to engineer the electronic properties of rare earth activated compounds”**

P. Dorenbos

Delft University of Technology, Delft, The Netherlands

11:15 – 11:30 **Coffee Break**

Session II. Chair: G. C. Righini

11:30 – 12:00 **I-2 “Luminescence of 5d-4f emitting rare earth ions in sulfide hosts”**

P.F. Smet, A.B. Parmentier, N. Avci, K. Korthout, J.J. Joos, D. Poelman

Ghent University, Gent, Belgium,

12:00 – 12:30 **I-3 “Rare earths electron traps to control the persistent luminescence for medical imaging”**

B. Viana^a, A. Lecointre^a, S. Blahuta^a, A. Bessiere^a, D. Gourier^a

T. Maldiney^b, C. Richard^b, D. Scherman^b
LCMCP-Chimie-Paristech– CNRS, Paris, France
Université Paris Descartes, Chimie-Paristech– CNRS, Paris, France

12:30 *Lunch*

Session IIIA. Chair: M. Ferrari & B. Viana

- 14:00–14:15 **O-1** “Over-1000-nm (OTN) Near Infrared Fluorescence Bioimaging by Using Rare-Earth Doped Ceramic Nanophosphors”
K. Soga, H. Hyodo, H. Kishimoto
^a *Tokyo University of Science, Noda, Japan*
- 14:15 –14:30 **O-2** “Tuning spectral selectivity via energy transfer in combinatorial libraries of upconverting nanoparticles”
E. Chan, G. Han, J. Goldberg, D. Gargas, A. Ostrowski, J. Schuck, B. Cohen D. Milliron
Lawrence Berkeley National Laboratory, Berkeley, CA , USA
- 14:30 – 14:45 **O-3** “Eu³⁺-ions as Fluorescent Probes for Atherosclerosis”
G. Jose, T. Kakkar, D. P. Jati, T. T. Fernandez, C. Bauer, C. Peers, S. Wheatcroft, N. Yuldasheva, A. Jha, S. Saha
University of Leeds, United Kingdom.
- 14:45 – 15:00 **O-4** “Probing trap depths in persistent luminescent CaAl₂O₄:Eu,Nd”
K. Van den Eeckhout^a, A. J. J. Bos^b, P. Dorenbos^b, D. Poelman^a, P. F. Smet^a
^a *Ghent University, Gent, Belgium*
^b *Delft University of Technology, Delft, The Netherlands*
- 15:00 – 15:15 **O-5** “Structural and Photoluminescence properties of Dy³⁺ co-doped and Eu²⁺ activated MAl₂O₄ (M = Ba, Ca, Sr) nanophosphors”
F. B. Dejene^a, M. A. Kebede^b
^a *University of the Free State (Qwaqwa Campus), Phuthaditjhaba, South Africa*
- 15:15 – 15:30 **O-6** “Fabrication and Long-persistent Properties of Eu doped Transparent Glass Ceramics by Frozen Sorbet Process”
T. Nakanishi^a, S. Tanabe^b, T. Komatsu^c, Y. Hasegawa^a
^a *Hokkaido University, Sapporo, Japan*
^b *Kyoto University, Kyoto, Japan*
^c *Nagaoka University of Technology, Nagaoka, Japan*
- 15:30 – 16:00 *Coffee Break*

Session IVA. Chair: G. Boulon & T. Tsuboi

- 16:00 – 16:30 **I-4** “**Impurity trapped excitons under high hydrostatic pressure**”
M. Grinberg, S. Mahlik
University of Gdańsk, Gdańsk, Poland
- 16:30 – 16:45 **O-7** “**High pressure luminescence spectra of CaMoO₄:Ln³⁺ (Ln= Pr, Tb)**”
S. Mahlik^{1,*}, M. Behrendt¹, M. Grinberg¹, E. Cavalli², M. Bettinelli³
¹*University of Gdańsk, Gdańsk, Poland*
²*Università di Parma, Parma, Italy*
³*Università di Verona, Verona, Italy*
- 16:45 – 17:00 **O-8** “**High pressure luminescence spectra of β-SiAlON:Pr³⁺**”
A. Lazarowska^a, S. Mahlik^a, M. Grinberg^a, T. C. Liu^b, R. S. Liu^b
^a *University of Gdansk, Gdańsk, Poland*
^b *National Taiwan University, Taipei, Taiwan*
- 17:00 – 18:00 **Poster session I** in *Yamauchi-Hall*

Wednesday, March 28 *Yamauchi-Hall*

Session IIIB. Chair: K. Ueda & R. Balda

- 14:00 – 14:30 **I-5** “**Ceramic Laser Technology**”
J. Sanghera^a, W. Kim^a, G. Villalobos^a, C. Baker^a, J. Frantz^a, B. Shaw^a,
B. Sadowski^b, M. Hunt^c, F. Miklos^b, and I. Aggarwal^b
^a*Naval Research Laboratory, Washington, DC, USA*
^b*Sotera Defense Solutions, MD, USA*
^c*URF, Greenbelt, MD, USA*
- 14:30 – 15:00 **I-6** “**Processing studies for highly transparent RE:YAG ceramics**”
J. Zhang, H. Yang, D. Luo, H. Lin, D. Tang, J. Ma
Nanyang Technological University, Singapore
- 15:00 – 15:15 **O-9** “**TEM Analysis of Rare Earth Dopant Distribution in YAG Optical Ceramics**”
G. Boulon^{a,b,*}, T. Epicier^c, V. Chani^b, A. Yoshikawa^b, L. Esposito^d
^a*IPCML, University of Lyon, Villeurbanne, France*
^b*IMR, Tohoku University, Sendai, Japan*
^c*MATEIS, Université de Lyon, Villeurbanne, France*
^d*National Research Council of Italy, Faenza, Italy*

Session IVB. Chair: J. Heo & T. Komatsu

- 15:15 – 15:30 **O-10 “Local rearrangement of the Er environment in rf-sputtered silica glass films”**
E. Trave^a, M. Back^a, M. Boffelli^a, E. Cattaruzza^a, F. Gonella^a, A. Leto^b, G. Pezzotti^c
^a *Venice Ca' Foscari University, Venezia, Italy*
^b *Piezotech Japan Ltd, Kyoto, Japan*
^c *Kyoto Institute of Technology, Kyoto, Japan*
- 15:30 – 16:00 *Coffee Break*
- 16:00 – 16:15 **O-11 “Fabrication and photoluminescence properties of transparent fluorescent silica glass”**
D. Yue^a, R. Yamada^a, S. Fujino^b, T. Kajiwara^b
^a *Department of Materials Process Engineering, Kyushu University*
^b *Department of Chemical Engineering, Kyushu University, Fukuoka, Japan*
- 16:15 – 16:30 **O-12 “Synthesis and Luminescence Properties of Rare Earth Doped (Eu, Er, Dy and Sm) SrAl₂O₄ Phosphor Ceramic”**
N.Can^a, M.Ayvaci^a, A.Ege^b, A.Khatib^b, M. Henini^{b*}
^a *Celal Bayar University, Manisa, Turkey*
^b *University of Nottingham, Nottingham, UK*
- 16:30 – 17:00 Prepare Poster session
- 17:00 – 18:00 **Poster session I**

Thursday, March 29 Inamori-Hall

Session VA. Chair: M. Bettinelli & H. Yamamoto

- 9:00 – 9:30 **I-7 “Revisiting Pandora's box of luminescence”**
A. Meijerink^a, C. Ronda^{a,b} and A. Srivastava^c
^a *Utrecht University, Utrecht, The Netherlands*
^b *Philips Corporate Technologies, Research, Eindhoven, The Netherlands*
^c *GE Global Research, Niskayuna, NY, USA*
- 9:30 – 9:45 **O-13 “Analysis of luminescent quenching in Ce-doped garnet phosphors by temperature dependence of photoconductivity”**
J. Ueda, K. Aishima, S. Tanabe
Kyoto University, Kyoto, Japan

9:45 – 10:00 **O-14** “**Thermal quenching mechanism of Sm doped TiO₂ revealed from charge propagation analyses with electric measurement techniques**”
M. Ishii^a, S. Harako^b, X. Zhao^b, S. Komuro^c, B. Hamilton^d
^a *National Institute for Materials Science, Tsukuba, Japan*
^b *Tokyo University of Science, Tokyo, Japan*
^c *Toyo University, Saitama, Japan*
^d *The University of Manchester, Manchester, United Kingdom*

10:00 – 10:30 **I-8** “**New Aspects of Polarized Photo-emission of Rare Earth Complexes in Molecular Thin Film**”
M. Hasegawa
Aoyama Gakuin University, Sagamihara, Japan

10:30 – 11:00 *Coffee Break*

Session VIA. Chair: A. Meijerink & P. Smet

11:00 – 11:30 **I-9** “**Ab initio calculations on Ce:YAG co-doped with La and Ga**”
L. Seijo
Universidad Autónoma de Madrid, Madrid, Spain

11:30 – 11:45 **O-15** “**Electronic origin of the spectroscopic red shift in 4f-5d transition energy of Ce³⁺ in garnet-type crystals**”
K. Ogasawara and K. Higashiura
Kwansei Gakuin University, Sanda, Japan

11:45 – 12:00 **O-16** “**Response function calculations of Ba₃Si₆O₁₂N₂ and Ba₃Si₆O₉N₄ for the understanding of the optical properties of the Eu-doped phosphors**”
M. Mikami^a
^a *Mitsubishi Chemical Group Science and Technology Research Center, Inc., Yokohama, Japan*

12:00 – 12:15 **O-17** “**Direct Modulation of Lanthanide Emission at Sub-Lifetime Scales by Selective Enhancement of Electric and Magnetic Dipole Transitions**”
S. Karaveli^a and Rashid Zia^a
^a *Brown University, Providence, RI, USA*

12:15 – 12:30 **O-18** “**Ab initio and experimental study of the optical properties of alkaline-earth chalcogenides**”
S. Poncé^a, X. Gonze^a, B. Bertrand^a, P.F. Smet^b, D. Poelman^b and M. Mikami^c
^a *Université Catholique de Louvain, Louvain-la-Neuve, Belgium*
^b *Ghent University, Ghent, Belgium*
^c *Mitsubishi Chemical Group, Science and Technology Research Center, Inc., Yokohama, Japan*

12:30 **Lunch**

Session VIIA. Chair: S. Im & M. Mikami

- 13:30 – 14:00 **I-10 “Rare earth layer doping in aluminum nitride related phosphor”**
T. Takeda^a, N. Hirosaki^a, R. J. Xie^a, K. Kimoto^a, M. Saito^b
^a *National Institute for Materials Science, Tsukuba, Japan*
^b *Tohoku University, Sendai, Japan*
- 14:00 – 14:15 **O-19 “Sub-bands in luminescence spectra of CaAlSiN₃:Eu²⁺”**
H. Yamamoto and Y. Suda
Fomerly at Tokyo University of Technology, Tokyo, Japan
- 14:15 – 14:30 **O-20 “Tunable photoluminescence from mixed-valence Eu-doped silicate glass ceramic phosphors”**
G. Gao, L. Wondraczek
University of Erlangen-Nuremberg, Erlangen, Germany
- 14:30 – 15:30 **Poster session II** *in Yamauchi-Hall*
- 15:30 – 16:00 *Coffee Break*

Session VIIIA. Chair: H. Yamamoto & T. Takeda

- 16:00 – 16:30 **I-11 “Solid-state Lighting using Nitride Semiconductor Laser Diodes”**
S. Masui, T. Yanamoto and S. Nagahama
Nichia Corporation, Anan, Tokushima, Japan
- 16:30 – 17:00 **I-12 “Phosphors for White LEDs”**
Y. Shimomura
*Mitsubishi Chemical Group Science and Technology Research Center, Inc.,
Yokohama, Japan*
- 17:00 – 17:30 **I-13 “Luminescent Properties via Energy Transfer of Two Ions Doped Phosphors for LED”**
S. J. Im, T. G. Kim, T. H. Kim
Samsung Electronics, Yongin-si, Korea
- 17:30 – 17:45 **O-21 “Synthesis of Red-emitting (Gd, La, Eu)₂W₂O₉ Phosphors”**
S. W. Kim, T. Masui, N. Imanaka
Osaka University, Suita, Osaka, Japan

- 17:45 – 18:00 **O-22** “Rechecking quantum cutting mechanism in Pr³⁺-Yb³⁺ codoped SrF₂ polycrystals”
S. Tanabe^{a,b} and Y. Katayama^a
^a *Kyoto University, Kyoto, Japan*
^b *Japan Science and Technology Agency Precursory Research for Embryonic Science and Technology (JST-PRESTO), Tokyo, Japan*

19:00 **Banquet** at Chorakukan Restaurant (Reception: 18:30~)

Thursday, March 29 **Yamauchi-Hall**

Session VB. Chair: T. Isobe & K. Soga

- 9:30 – 9:45 **O-23** “Efficient Dual-Mode NIR to NIR Emission of Rare-earth Ions Co-doped Nanocrystals”
J. Zhou^a, Y. Teng^a, S. Zhou^a, J. Qiu^{a,b}
^a *Zhejiang University,*
^b *South China University of Technology, Guangzhou, P.R.China.*
- 9:45 – 10:00 **O-24** “Tb³⁺/Yb³⁺ Co-doped KY₃F₁₀ Monodispersed Nanocrystals: Hydrothermal Synthesis and Upconversion Luminescence”
X. Xue, T. Suzuki and Y. Ohishi
Toyota Technological Institute, Nagoya, Japan
- 10:00 – 10:15 **O-25** “Rare-earth doped nanoparticles as temperature sensors for microsystems”
G. Ledoux, D. Amans, C. Dujardin, F. Lux, M. Martini, O. Tillement, C. Truillet
CNRS Université de Lyon, Villeurbanne Cedex, France
- 10:15 – 10:30 ✖cancelled
~~**O-26** “Controlling the thickness of Yttria shell on silica core with sacrificial polymer shell method to obtain luminescent material”
M. Ghahari^{a,*}, P. Fabbri^b, F. Pilati^b, R. Aghababazadeh^a
^a *Institute of Colorants, Paints and Coatings (ICPC), Iran*
^b *Università degli Studi di Modena e Reggio Emilia, Modena, Italy*~~
- 10:30 – 11:00 **Coffee Break**

Session VIB. Chair: P. Dorenbos & A. Yoshikawa

- 11:00 – 11:30 **I-14 “Growth and characteristics of novel optical single crystals”**
K. Shimamura and E. G. Villora
National Institute for Materials Science, Tsukuba, Japan
- 11:30 – 12:00 **I-15 “Study of Rare Earth Doped Scintillators”**
T. Yanagida^a Y. Fujimoto^b, Y. Futami^b, D. Totsuka^b, N. Kawaguchi^b,
A. Yoshikawa^b
^a *NICHE, Tohoku University, Sendai, Japan*
^b *IMR, Tohoku University, Sendai, Japan*
- 12:00 – 12:15 **O-27 “Spectroscopic characterisation of Pr³⁺ doped Lu₃Al₅O₁₂ single crystal.”**
A. Strzep^a, W. Ryba-Romanowski^a, X. Xu^b, J. Xu^b
^a *Institute of Low Temperatures and Structure Research PAS, Wroclaw, Poland*
^b *Shanghai Institute of Ceramics, Shanghai, China*
- 12:15 – 12:30 **O-28 “Fast *d-f* luminescence of Pr³⁺-activated Lu₂SiO₅”**
M. Trevisani^a, F. Piccinelli^a, A. Speghini^a, K. Ivanovskikh^b, M. Bettinelli^a
^a *Univ. Verona, Verona, Italy*
^b *Univ. Canterbury, Christchurch, New Zealand*
- 12:30 **Lunch**

Session VIIB. Chair: R. Balda & S. Jiang

- 13:30 – 13:45 **O-29 “EUV Free-Electron Laser Induced Vacuum-Ultraviolet Fluorescence from Nd³⁺:LuLiF₄”**
N. Sarukura^a K. Yamanoi^a, R. Nishi^a, Y. Shinzato^a, T. Nakazato^a, M. Cadatal-Raduban^a, T. Shimizu^a, K. Fukuda^b, T. Suyama^b, T. Yanagida^c, Y. Yokota^c, A. Yoshikawa^c, M. Nagasono^d, T. Togashi^e, T. Sato^d, T. Ishikawa^d
^a *Osaka Univ., Suita, Osaka, Japan*
^b *Tokuyama Corporation, Tokyo, Japan*
^c *IMR, Tohoku Univ., Sendai, Japan*
^d *RIKEN/SPring-8, Sayo, Hyogo, Japan*
^e *JASRI/SPring-8, Sayo, Hyogo, Japan*
- 13:45 – 14:00 **O-30 “Nucleation of Er-rich Phases as Cores of Nano-Crystals in Oxyfluoride Glass-Ceramics”**
J. Heo^a and C. Liu^{a,b}
^a *Pohang University of Science and Technology, Pohang, Korea*
^b *Wuhan University of Technology, Wuhan, China*

14:00– 14:15 **O-31** “Morphology and dispersion state of Er³⁺-doped CaF₂ nanocrystals in oxyfluoride glass-ceramics”

K. Shinozaki, T. Honma, K. Oh-ishi, T. Komatsu

Nagaoka University of Technology, Nagaoka, Japan

14:15 – 14:30 Prepare Poster session

14:30 – 15:30 **Poster session II**

15:30 – 16:00 *Coffee Break*

Friday, March 30 *Inamori-Hall*

Session IX. Chair: R. Quimby & M. Ferrari

9:00– 9:15 **O-32** “Eu Luminescence Properties in Eu-Doped Al_xGa_{1-x}N Grown by Organometallic Vapor Phase Epitaxy”

Y. Fujiwara^a, K. Kawabata^a, H. Ofuchi^b, D. Lee^a, A. Koizumi^a, A. Nishikawa^a, Y. Terai^a, and T. Honma^b

^a*Osaka University, Suita, Osaka, Japan*

^b*Japan Synchrotron Radiation Research Institute, Hyogo 679-5198, Japan*

9:15 – 9:30 **O-33** “A dual-mode solar spectral converter CaLaGa₃S₆O:Ce³⁺,Pr³⁺”

G. Zhang, C. Liu, J. Wang, X. Kuang and Q. Su

Sun Yat-sen University, Guangzhou, China

9:30 – 9:45 **O-34** “Optical Properties of YVO₄:Bi³⁺,Eu³⁺ Nanophosphors Spectral Down-Shifter and its Application to Monocrystalline Silicon PV module”

T. Isobe, Y. Iso, S. Takeshita

Keio University, Yokohama, Japan

9:45 – 10:15 **I-16** “Low phonon energy glass ceramics for wavelength conversion”

X. Zhang^a, J. L. Adam^a, X. Fan^b, B. Fan^a, C. Point^a, H. Ma^a, L. Calvez^a and J. Lucas^a

^a*Université de Rennes I, Renne, France*

^b*Zhejiang University, Hangzhou, China*

10:15 – 10:45 *Coffee Break*

Session X. Chair: J-L. Adam & H. Ebendorff-Heidepriem

- 10:45 – 11:15 **I-17** ” **Low phonon energy hosts for mid-IR lasers**”
R.S. Quimby^a
^a *Worcester Polytechnic Institute, Worcester, MA, USA*
- 11:15 – 11:30 **O-35** ” **Temperature dependence of lifetime of 1.3 μ m emission from Dy³⁺-doped Ge-As-S glass modified with very small amount of Ga and CsBr**”
Y. G. Choi^a, R. J. Curry^b, D. W. Hewak^c
^a *Korea Aerospace University, Goyang, Republic of Korea*
^b *University of Surrey Guildford, UK*
^c *University of Southampton, Southampton, UK*
- 11:30 – 11:45 **O-36** ” **Near- and mid-infrared emissions from Dy³⁺ or Nd³⁺-doped Ga₂S₃-GeS₂-Sb₂S₃ glass**”
K. Kadono, M. Ichikawa, Y. Ishikawa, T. Wakasugi
Kyoto Institute of Technology, Kyoto, Japan
- 11:45 – 12:00 **O-37** ” **Efficient compact narrow-linewidth single frequency fiber lasers**”
S. Xu, Z. Yang,* and J. Qiu
South China University of Technology, Guangzhou, China
- 12:00 – 12:30 **I-18** ” **Tm-doped Glass Fibers for 2-micron Fiber Lasers**”
S. Jiang
AdValue Photonics Inc, Tucson, AZ, USA
- 12:30 **Lunch**

Session XI. Chair: K. Kadono & X-H. Zhang

- 13:30 – 14:00 **I-19** ” **Random lasing in solid state systems**”
I. Iparraguirre^a, J. Azkargorta^a, M. Bettinelli^b, C. Cascales^c, S. Garcia-Revilla^a,
J. Fernandez^{a,d}, R. Balda^{a,d}
^a *Universidad del Pais Vasco, Bilbao, Spain*
^b *University of Verona and INSTM, Verona, Italy*
^c *Instituto de Ciencia de Materiales de Madrid-ICMM, Madrid, Spain*
^d *Materials Physics Center CSIC-UPV/EHU and Donostia International Physics Center, San Sebastián, Spain*
- 14:00 – 14:15 **O-38** ” **3.5 μ m fluorescence and ASE from Dy³⁺-doped tellurite glass and fs-laser written tellurite waveguides**”
B. Richards^a, T. T. Fernandez^a, G. Jose^a, A. Jha^a
^a *University of Leeds, Leeds, UK*

14:15 – 14:30 **O-39** “**Design and refinement of rare earth doped multicore fiber lasers**”
F. Prudenzano, L. Mescia, A. Di Tommaso, T. Palmisano, M. De Sario
Politecnico di Bari, Bari- Italy

Session XII. Chair: J. Qiu & J. Sanghera

14:30 – 15:00 **O-40** “**Chemical environments and photoluminescence properties of rare-earth ions in BiO_{1.5}-WO₃-TeO₂ glasses**”
T. Hayakawa^a, T.Fujiwara^a, M.Nogamia, J.R.Duclere^b, P.Thomas^b
^a *Nagoya Institute of Technology, Nagoya, Japan*
^b *SPCTS, Universite de Limoges, Limoges, France*

15:30 – 16:00 **Closing Ceremony**

Poster session I (17:00-18:00 March 28)

- P-1** “Upconversion Luminescence of the RE-codoped Tellurite Glass (RE-Nd³⁺/Er³⁺) under the 585nm excitation.”
Azman K.^a, Azhan H.^a, W.A.W.Razali^b, M.R.Sahar^b
^a *Universiti Teknologi MARA Pahang, Pahang, Malaysia*
^b *Universiti Teknologi Malaysia, Johor, Malaysia*
- P-2** “Luminescence properties of Sm³⁺ ions in zinc fluorophosphate glasses”
Ki-Soo Lim^a, N. Vijaya^b, C.R. Kesavulu^b and C.K. Jayasankar^b
^a *Chungbuk National University, Cheongju, Republic of Korea.*
^b *Sri Venkateswara University, Tirupati, India.*
- P-3** “Spontaneous reduction behavior of europium ions induced by Al and Zn additions in SiO₂ matrix”
Wei PAN, Yi-Chun TZONG, Yu-Chun WU
National Cheng-Kung University, Tainan City, Taiwan
- P-4** “Electronic States of Trivalent Rare Earth Ion Doped in APLF Glass”
M. Tsuboi^a, M. Kouno^a, T. Nakazato^a, T. Shimizu^a, M. Cadatal-Raduban^a, K. Yamanoi^a, K. Sakai^a, R. Nishi^a, Y. Minami^a, Y. Arikawa^a, N. Sarukura^a, T. Norimatsu^a, M. Nakai^a, H. Azechi^a, T. Murata^b, S. Fujino^c, H. Yoshida^d, T. Suyama^e, K. Fukuda^e, A. Yoshikawa^f, N. Sato^g, H. Kan^g, K. Kamada^h, and Y. Usuki^h
^a *Osaka University, Suita, Japan*
^b *Kumamoto University, Kumamoto, Japan*
^c *Kyushu University, Fukuoka, Japan*
^d *Ceramic Research Center of Nagasaki, Higashisonogi, Japan*
^e *Tokuyama Co. Ltd., Tokyo, Japan*
^f *Tohoku University, Sendai, Japan*
^g *Hamamatsu Photonics K.K., Hamamatsu, Japan*
^h *Furukawa Co. Ltd., Tsukuba, Japan*
- P-5** “Rare earth doped transparent oxy-fluoride glass-ceramics: luminescence properties and energy transfer kinetics”
Atul D. Sontakke, K. Biswas, Ashis K. Mandal, R. Sen and K. Annapurna
CSIR-Central Glass and Ceramics Research Institute, Kolkata, India.
- P-6** “Synthesis and characterization of Eu³⁺/ Y₂O₃ (red nanophosphors) and Tb³⁺/ Y₂O₃ (green nanophosphors) by sol-gel and hydrothermal methods – towards excellent photoluminescence properties”
Ravindra P. Singh^{a*}, Ashutosh Pandey^b and Anjana Pandey^a
^a *University of Allahabad, India*
^b *Motilal Nehru National Institute of Technology, Allahabad, India*
- P-7** “Preparation and Luminescence Properties of Tb doped Sr₂SnO₄”
Z.Kotan^a, M.Ayvacikli^a, A.Ege^a, N. Can^a
^a *Celal Bayar University, Manisa, Turkey*

- P-8 “Photoluminescence of ZnO nanorods formed on different substrates and the effect of rare earth doping”**
T. W. Kian^a, K.A. Razak^b, Z. Lockman^b, G. Kawamura^a, H. Muto^a, and A. Matsuda^a
^a *Toyohashi University of Technology, Toyohashi, Japan.*
^b *Universiti Sains Malaysia, Pulau Pinang, Malaysia.*
- P-9 “Absorption spectra and Judd-Ofelt theory analysis of Er³⁺ and Er³⁺-Yb³⁺ in analogous ZBLAN Glasses”**
R. Gai, Z. Xiao, R. Yan, F. Zhang, S. Deng, A. Huang
Beihang University, Beijing, China
- P-10 “Synthesis and characterization of PbS nanorods doped with Tb³⁺ ions using the chemical bath deposition method”**
L.F. Koao^a, F. B. Dejene^{a*} and H.C. Swart^b.
^a *University of the Free State (Qwaqwa Campus), Phuthaditjhaba, South Africa*
^b *University of the Free State, Bloemfontein, South Africa*
- P-11 “Synthesis and characterization of ZnO nano Flakes-like doped with Tb³⁺ ions using the chemical bath deposition method”**
L.F. Koao^a, F. B. Dejene^{a*} and H.C. Swart^b.
^a *University of the Free State (Qwaqwa Campus), Phuthaditjhaba, South Africa*
^b *University of the Free State, Bloemfontein, South Africa*
- P-12 “Investigation of Fluoride Crystals with co-dopant including Na”**
S. Kurosawa^a, Y. Yokota^a, T. Yanagida^b, A. Yoshikawa^{a, b}
^a *Tohoku University, Sendai, Japan.*
^b *New Industry Creation Hatchery Center (NICHe) Sendai, Japan*
- P-13 “Spectroscopic characterization of Ca₃Y₂(SiO₄)₃:Eu at ambient and high hydrostatic pressure”**
A. Baran^a, S. Mahlik^a, M. Grinberg^a, A. Dobrowolska^b, E. Zych^b
^a *University of Gdansk, Gdansk, Poland*
^b *University of Wroclaw, Wroclaw, Poland*
- P-14 “Optical Properties of C-rare-earth Y_{2(1-x)}Tb_{2x}O₃ Mixed-Crystals”**
Y. Chibana, H.Naruse, H.Oda, and A.Yamanaka
Chitose Institute of Science and Technology, Chitose, Japan
- P-15 “Particle swarm approach for global parameter optimization of rare earth-doped photonic crystal fiber amplifiers”**
L. Mescia, G. Fornarelli, A. Giaquinto, M. De Sario F. Prudeniano
Dipartimento di Elettrotecnica ed Elettronica–Politecnico di Bari, Bari- Italy
- P-16 “Predicting and Quantifying Magnetic Dipole Emission in Trivalent Lanthanide Ions”**

C. Dodson^a and R. Zia^a

^a *Brown University, Providence, RI, USA*

P-17 “Rapid synthesis of Eu-doped LNT (Li-Nb-Ti-O) phosphor by millimeter-wave heating”

H. Nakano^a, K. Ozono^a, T. Saji^b, S. Miyake^b, H. Hayashi^c

^a *Toyohashi University of Technology, Toyohashi, Japan*

^b *MSP Corp., Higashiosaka, Japan*

^c *KRI, Inc., Kyoto, Japan*

P-18 “Structure and spectroscopy of new lanthanide silicates possessing silico-carnotite structure”

F. Piccinelli, A. Speghini, M. Bettinelli

Univ. Verona, Verona, Italy

P-19 “Optical Properties of Tb³⁺-Doped GeO₂-ZrO₂ Thin Films Prepared by Sol-Gel Method”

M. Abe^a, T. Sanada^a, K. Yamamoto^b, N. Wada^c, K. Kojima^a

^a *Ritsumeikan University, Kusatsu, JAPAN*

^b *Industrial Research Center of Shiga Prefecture, Rittou, Shiga, Japan*

^c *Suzuka National College of Technology, Suzuka, Mie, Japan*

P-20 “Confocal micro-photoluminescence investigation of swift C³⁺ irradiated optical waveguides in Yb:SBN crystals”

N. N. Dong^a, J. Olivares^{b,c}, D. Jaque^d, F. Chen^a

^a *Shandong University, Jinan, China*

^b *Universidad Autónoma de Madrid, Madrid, Spain*

^c *CSIC, C/Serrano, Madrid, Spain*

^d *Universidad Autónoma de Madrid, Madrid, Spain*

P-21 “Fluorescence and laser properties of Nd:GGG planar waveguide fabricated by swift carbon ion irradiation”

Y. Jia^a, H. Liu^a, N. Dong^a, F. Chen^a, S. Zhou^b

^a *Shandong University, Jinan, China*

^b *Institute of Ion Beam and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany*

P-22 “Well aligned La-doped ZnO nanowires synthesized on ITO/glass templates”

H. H. Li^a, C. L. Hsu^{a,*}, S. P. Chang^b

^a *National University of Tainan, Tainan, Taiwan.*

^b *National Cheng Kung University, Tainan, Taiwan.*

P-23 “Examination of the dynamic range of Sm-doped glasses for high-dose and high-resolution dosimetric applications in microbeam radiation therapy at the Canadian Synchrotron”

G. Okada^a, S. Vahedi^a, B. Morrell^a, C. Koughia^a, G. Belev^b, T. Wysokinski^b, D. Chapman^a, C. Varoy^c, A. Edgar^c, S. Kasap^a

^a *University of Saskatchewan, Saskatoon, SK, Canada*

^b Canadian Light Source Inc., Saskatoon, SK, Canada

^c Victoria University of Wellington, New Zealand

P-24 “The Preparation and Luminescent Properties of Ca₂SiO₄:Eu²⁺ Powders by A Sol-gel Method”

J. H. Park, J. S. Lee, Y. J. Kim*

Kyonggi University, Suwon, Korea

P-25 “Magneto-Optical and Magnetic Properties of Oxide Glasses with High Concentration of Eu²⁺ Ions”

H. Akamatsu, K. Fujita, S. Murai, K. Tanaka

Kyoto University, Kyoto, Japan

P-26 “Doping of inorganic glass with erbium dispersed in plastic binders”

M. Pępczyńska, R. Węglowski, I. Cieślak, S. J. Kłosowicz

Military University of Technology, Warsaw, Poland

P-27 “Luminescence of Barium Aluminate Phosphors Activated by Eu²⁺ and Dy³⁺”

K. Matsui^a, M. Arima^a, H. Kanno^b

^a*Kanto Gakuin University, Yokohama, Japan*

^b*Water Science laboratory, Yokohama, Japan*

P-28 “Effect of co-doping in Tm-doped mixed rare earth perovskite”

D. Totsuka^{a,b}, T. Yanagida^c, M. Sugiyama^a, Y. Fujimoto^a, Y. Yokota^a,

A. Yoshikawa^{a,c}

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^b*Nihon Kessho Kogaku CO., LTD, Tatebayashi, JAPAN*

^c*NICHE, Tohoku University, Sendai, JAPAN*

P-29 “Formation and photoluminescence properties of RE₂(W_xMo_{1-x}O₄)₃ crystals in glasses”

Y. Wang, T. Honma, T. Komatsu

Nagaoka University of Technology, Nagaoka, Japan

P-30 “Luminescence properties of Nd³⁺ doped LuLiF₄ single crystals with different dopant concentrations”

A. Yamaji^a, T. Yanagida^b, Y. Fujimoto^a, N. Kawaguchi^c, K. Fukuda^c,

Y. Yokota^a, A. Yoshikawa^a,

^a*IMR, Tohoku University, Sendai, Japan*

^b*NICHE, Tohoku University, Sendai, Japan*

^c*Tokuyama Corporation, Tokyo, Japan*

P-31 “Synthesis of SrO:Eu²⁺ blue phosphor with simple orthorhombic lattice”

K. Komatsu¹, A. Nakamura^{1,2}, S. Ohshio¹, H. Akasaka¹ and H. Saitoh¹

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²*Chubu Chelest Co., Ltd., Japan*

P-32 “Study of all-fiber self-mode-locked linear-cavity picosecond fiber laser based on a highly doped ytterbium fiber”

Y. C. Song^a, C. H. Chen^a, W. T. Wu^{b#}, J. L. Tang^{a*}

^a *National Chung Cheng University, Chiayi, Taiwan*

^b *National Pingtung University of Science and Technology, Pingtung, Taiwan*

P-33 “Synthesis and photoluminescence of Ba_{1-x}RE_{2x/3}Nb₂O₆ nanocrystals with tetragonal tungsten-bronze structure in glasses”

H. Ida, T. Honma, T. Komatsu

Nagaoka University of Technology, Nagaoka, Japan

P-34 “Comparative Study of Optical and Scintillation Properties of Tm³⁺:YAG and Tm³⁺:LuAG Single Crystals”

Y. Fujimoto^a, M. Sugiyama^a, T. Yanagida^b, S. Kurosawa^a, A. Yoshikawa^{a, b}

^a *IMR, Tohoku University, Sendai, Japan.*

^b *NICHe, Tohoku University, Sendai, Japan.*

P-35 “Manufacturing of YAG:Ce Phosphor ceramic by Ce diffusion method”

K. Wataya, T. Tsukatani, H. Nakano, H., T. Minowa

Shin-Etsu Chemical Co., Ltd., Fukui, Japan.

P-36 “Up-conversion emission properties and structural analyses in sol-gel derived Nd³⁺-doped oxyfluoride glass ceramics”

G. Kawamura^a, R. Yoshimura^a, K. Ota^a, S. Y. Oh^a, H. Muto^a, T. Hayakawa^b,
A. Matsuda^a

^a *Toyohashi University of Technology, Toyohashi, Japan*

^b *Nagoya Institute of Technology, Nagoya, Japan*

P-37 “Preparation of Red Dyes derived from Quinacridone pigment and Properties for LCD Color Filter”

G. H. Kil, N. R. Kim, J. Y. Lee, and J. H. Choi

Kyungpook National University, Daegu, Korea.

P-38 “Rare earth doped silicate oxyfluoride glass ceramics with LaF₃ nano-crystals for UV-LED color conversion”

Woon Jin Chung^a, Suk-Rok Bae^a, Yong Gyu Choi^b

^a *Institute for Rare Metals and Division of Advanced Materials Engineering, Chungnam, Republic of Korea*

^b *Korea Aerospace University, Gyeonggi, Republic of KOREA*

P-39 “Near infrared emission properties in Bi-doped phosphate glasses”

K. Yamada^{a, b, c}, Y. Fujimoto^b, H. Umeda^d, N. Yamashita^d, K. Yamaguchi^d,
T. Einishi^d, T. Wakasugi^a, M. Nakatsuka^b, K. Kadono^a

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- ^b *Institute of Laser Engineering, Suita, Osaka, Japan*
^c *Promotion center for Laser Technology, Suita, Osaka, Japan*
^d *Isuzu Glass Co., Ltd., Osaka, Japan*

P-40 “Synthesis and Luminescent Properties of Self-Assembly LiCaAlF₆: Cr³⁺ Microcrystals via Polyol-Mediated Solvothermal Method”

X. Xue, T. Morikawa, T. Suzuki and Y. Ohishi

Toyota Technological Institute, Nagoya, Japan

Poster Session II (14:30-15:30 March 29)

P-41 “Phosphor-Glass Composites for White LED”

R. Suzuki, M. Iwao, S. Fujita, M. Ohji

Nippon Electric Glass Co., Ltd., Otsu, Shiga, Japan.

P-42 “Quantum efficiency of Nd-doped phosphate glass under simulated sunlight”

K. Nogata, T. Suzuki and Y. Ohishi

Toyota Technological Institute, Nagoya, Japan

P-43 “Photoluminescence characterization of Eu³⁺ ion in Mg-substituted tricalcium phosphate phosphors”

T. Y. Chang, T. Y. Lin, H. M. Lin

National Taiwan Ocean University, Keelung, Taiwan

P-44 “Biologically adequate white LED lamps based on rare earth phosphors”

V. Ulasyuk^a, N. Soschin^a

^a *Corporation “ELTAN LTD”, Moscow, Russia*

P-45 “Photoluminescence Properties of Rare Earth Doped Bi₄G₃O₁₂ (BGO) Crystals”

Z. Kotan^a, A. Khatab^b, M. Ayvacikli^a, M. Henini^{b*}, N. Can^a

^a *Celal Bayar University, Manisa, Turkey*

^b *University of Nottingham, Nottingham, UK*

P-46 “Explicit *ab initio* calculations of the electronic structure of impurity-trapped excitons in lanthanide-doped fluorite crystals”

Z. Barandiaran and L. Seijo

Universidad Autonoma de Madrid, Madrid, Spain

P-47 “Effect of citric acid-glycine ratio on photoluminescent properties of Mg₂SiO₄:Eu³⁺”

M. Ghahari^{a*}, K. Mostafavi^b, S. Baghshahi^b, A. Arabi^a

^aInstitute of Colorants, Paints and Coatings (ICPC), Iran

^bAzad University, Iran

P-48 “Spectroscopic properties of Er³⁺-doped fluorotellurite glasses”

A. Miguel^a, M. Al-Saleh^a, J. Azkargorta^a, R. Morea^b, J. Gonzalo^b, J. Fernandez^{a,c},
R. Balda^{a,c}

^aUniversidad del Pais Vasco, Bilbao, Spain

^bInstituto de Optica, Consejo Superior de Investigaciones Científicas, Madrid, Spain

^cMaterials Physics Center CSIC-UPV/EHU and Donostia International Physics Center, San Sebastián, Spain

P-49 “Effect of calcination on rapid synthesis of Eu-doped Li-Nb-Ti-O phosphor”

H. Hayashi^a, K. Ozono^b and H. Nakano^b

^aKRI, Inc. Printed Electronics Laboratory, Kyoto, Japan

^bToyohashi University of Technology, Toyohashi, Japan

P-50 “Luminescence characteristics of Nd, Ho, Tm, and Er Co-doped Eu:LiCaAlF₆”

Y. Futami^a, T. Yanagida^b, Y. Furuya^a, N. Kawaguchi^a, Y. Fujimoto^a, A. Yamaji^a,
J. Pejchal^a, Y. Yokota^a and A. Yoshikawa^{a,b}

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^bNICHE, Tohoku University, Sendai, Japan.

P-51 “Decay Behavior of Tb³⁺ Green Fluorescence in Borate Glasses”

N. Wada^a, K. Kojima^b

^aSuzuka National College of Technology, Suzuka, Mie, Japan

^bRitsumeikan University, Kusatsu, Shiga, Japan

P-52 “Luminescence Enhancement in an amorphous Silicon Nitride film by Cerium ion Implantation”

A. Chiba^{a,b*}, S. Tanaka^a, W. Inami^{b,c},

A. Sugita^{a,b} and Y. Kawata^{a,b}

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^cDivision of Global Research Leaders, Shizuoka University, Hamamatsu, Japan.

P-53 “Laser patterning and photoluminescence properties of rare earth-doped β-BaB₂O₄ crystals in glass”

K. Ogawa, T. Honma, T. Komatsu

Nagaoka University of Technology, Nagaoka, Japan

P-54 “Optical Properties of Silica-coated Sr₂MgSi₂O₇:Eu,Dy Nanoparticles Prepared by Laser Ablation in Liquid”

M. Ishizaki, T. Fuchigami, Y. Kitamoto, O. Odawara, H. Wada

Tokyo Institute of Technology, Yokohama, Japan

P-55 “Photoluminescence Characteristics of melt-grown Eu-Al₂O₃”

S. Furukawa, T. Daimon, H. Horiuchi, A. Yamanaka

Chitose Institute of Science and Technology, Chitose, Japan

P-56 “First-Principles calculation of 4f³-4f²5d¹ absorption spectra of Nd³⁺ in fluoride crystals”

M. Kobayashi, K. Higashiura, K. Ogasawara

Kwansei Gakuin University, Sanda, Japan

P-57 “Red-emitting (Gd, Ca, Eu)₂W₂O₉ Phosphors”

T. Masui, S. W. Kim, N. Imanaka

^a *Osaka University, Suita, Osaka, Japan*

P-58 “Role of energy migration among Gd³⁺ ions in quantum cutting process in NaY_{1-x}Gd_xF₄:Eu³⁺”

T. Hirai^a, H. Kondo^b, T. Kawai^c

^a *Ritsumeikan University, Kusatsu, Shiga, Japan*

^b *Ehime University, Matsuyama, Ehime, Japan*

^c *Osaka Prefecture University, Sakai, Osaka, Japan*

P-59 “Synthesis of YVO₄:Eu nanophosphor by microemulsion-mediated solvothermal method”

A. Isomae, A. Kato

Nagaoka University of Technology, Nagaoka, Japan

P-60 “Eu concentration dependence of luminescent properties of Sr_{1-x}Eu_xGa₂S₄ phosphors by polymerized complex sulfurization method”

K. Taniguchi, T. Honda, A. Kato

Nagaoka University of Technology, Nagaoka, Japan

P-61 “Luminescent Properties of Nd³⁺-Doped Glasses in the VUV Region”

T. Murata^{a,b}, K. Yamanoi^b, Y. Arikawa^b, T. Nakazato^b, M. Cadatal-Raduban^b, T. Shimizu^b, N. Sarukura^b, M. Nakai^b, T. Norimatsu^b, Y. Hironaka^b, H. Nishimura, H. Azechi^b, K. Fukuda^c, T. Suyama^c, S. Fujino^d, H. Yoshida^e, A. Yoshikawa^f, N. Sato^g, H. Kan^g

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^b *Osaka University, Suita, Osaka, Japan*

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^f *IMR, Tohoku University, Sendai, Japan*

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- P-62** “3D visualization of 4-component relativistic wave functions of the free U^{3+} ion and the U^{3+} ion in Cs_2NaYCl_6 ”
T. Katakami and K. Ogasawara
Kwansei Gakuin University, Sanda, Japan
- P-63** “Phase Formations and Tunable Red Phosphors of $LiYb_{1-x}Eu_x(MoO_4)_2$ ($x=0.01-1$)”
X. Qiao, H. J. Seo
Pukyong National University, Busan, Republic of Korea
- P-64** “Sol-gel synthesis and luminescence properties of Eu^{3+} -doped LaM_2AlO_5 (M = Ba, Sr) phosphors”
Y. Tao^a, M. Kim^a, H. J. Seo^a
^a*Pukyong National University, Busan, Republic of Korea*
- P-65** “The effects of Eu ions and Eu:Dy ratio on the structural, morphological and luminescence properties off blue-green $BaAl_xO_y:Eu^{2+}, Dy^{3+}$ nano phosphors”
F B Dejene
^a *University of the Free State (Qwaqwa Campus), Phuthaditjhaba, South Africa*
- P-66** “Glass formation and spectroscopic properties of rare-earth ions in the glasses based on $Ga_2S_3-GeS_2-Sb_2S_3-CsX$ (X=halogen) systems”
K. Kuroda, R. Fujiwara, Y. Ishikawa, T. Wakasugi, K. Kadono
Kyoto Institute of Technology, Kyoto, Japan
- P-67** “Er and Cu cosputtered SiO_2 films: enhancement of the rare earth emission at 1.54 μm mediated by metal sensitizers”
E. Trave, E. Cattaruzza, G. Battaglin
Ca' Foscari University of Venezia, Venezia, Italy
- P-68** “Synthesis in the presence of Nonthermal Plasma Discharge and Luminescence Properties of $Sr_2SiO_4:Eu^{2+}$ Green Phosphors”
R. Ko, S. B. Lee, Y. S. Mok
Jeju National University, Jeju, Korea
- P-69** “Enhancement of Downconversion and Upconversion in Er-Yb doped Oxyfluoride Glass-Ceramics”
M. Y. Yoo^a, H. M. Jeong^a, D. Y. Lee^a, W. Y. Lee^a, Ki-Soo Lim^{a,*}, and P. Babu^b
^a*Chungbuk National University, Cheongju, Republic of Korea*
^b*Govt. Degree and P.G. College, Wanaparthy, India*
- P-70** “The effect of preparation technology on scintillation properties of $Ce:Gd_3(Ga,Al)_5O_{12}$ single crystal”
A. Yoshikawa^{a,b*}, K. Kamada^c, T. Yanagida^b, Y. Fujimoto^a, S. Kurosawa^a, M. Sugiyama^a, S. Wakahara^a, Y. Futami^b, Y. Yokota^a, K. Yubuta^a, T. Shishido^a,

M. Kikuchi^a, M. Nikl^d

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^d *Institute of Physics, AS CR, Prague, Czech Republic*

P-71 “Doping Concentration Dependence on VUV Luminescence of Tm:CaF₂”

N. Kawaguchi^{a,b,c}, T. Yanagida^d, Y. Futami^b, Y. Fujimoto^b, K. Fukuda^a,

S. Kajimoto^c, H. Fukumura^c, S. Kurosawa^b, Y. Yokota^b, A. Yoshikawa^{b,d}

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^c *Tohoku University, Sendai, Japan*

^d *NICHE, Tohoku University, Sendai, Japan*

P-72 “Yb:CaGdAlO₄ as bulk and thin disk laser material”

S. Ricaud,^{1,5} A. Jaffres,² A. Suganuma,² P. Loiseau,² B. Viana,²
B. Weichelt,³ M. Abdou-Ahmed,³ A. Voss,³ T. Graf,³ D. Rytz,⁴ M.
Delaigue,⁵ E. Mottay,⁵ F. Druon¹ and P. Georges,¹

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³ *Universität Stuttgart, Pfaffenwaldring, Germany*

⁴ *FEE GmbH, Idar-Oberstein, Germany*

⁵ *Amplitude Systèmes, Pessac, France*

P-73 “In vivo imaging with Eu,Tm:Ca₂Si₅N₈ persistent luminescence nanoparticles”

T. Maldiney^a, G. Sraiki^b, B. Viana^b, D. Gourier^b, C. Richard^a,
K. van den Eeckhout^c, Ph. Smet^c, D. Poelman^c.

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P-74 “White OLED with a Single-Component Europium Complex”

H. Li, K. L. Wong, H. L. Tam and K. W. Cheah

Hong Kong Baptist University, Kowloon Tong, Hong Kong SAR

P-75 “Er-doped tungsten-tellurite N⁺ - implanted waveguides: optical and spectroscopic characterization”

S. Berneschi^{a,b}, A. Chiasera^c, M. Ferrari^c, G. Nunzi Conti^a, S. Pelli^a,

G.C. Righini^a, M. Fried^d, N.Q. Khánh^d, T. Lohner^d, P. Petrik^d, Z. Zolnai^d,

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^e *Research Institute of Solid State Physics and Optics, Budapest, Hungary*

- P-76 “Polyol Mediated Synthesis of PrF₃ and PrF₃:Ce³⁺ Nanofluorides: Structural, Optical and Thermal Studies”**
S.Suriya Kala and J.Senthil Selvan*
University of Madras, Guindy campus, Chennai, India.
- P-77 “Advanced Synthesis and Properties of CaAlSiN₃:Eu²⁺ by a CRN Method”**
H. S. Kim^a, K. Machida^a, Y. Shimomura^b
^a *Osaka University, Suita, Osaka, Japan*
^b *Mitsubishi Chemical Group, Science and Technology Research Center, LTD, Yokohama, Japan*
- P-78 “Charge-compensation Effect of Al on Luminescence Properties of M₂(Si,Al)₅N₈:Ce³⁺ (M=Ca, Sr, Ba)”**
D. Kuramoto^a, T. Horikawa^a, H. Hanzawa^b, K. Machida^a
^a *Osaka University, Suita, Osaka, Japan*
^b *Osaka University, Toyonaka, Osaka, Japan*
- P-79 “IR stimulated broadband white luminescence of YbAG nanocrystals”**
W. Strek, L. Marciniak, P. Gluchowski, D. Hreniak
Institute of Low Temperature and Structure Research, Wrocław, Poland
- P-80 “A NIR emitting Ca₃SiO₄Cl₂:Pr³⁺, Eu²⁺ for enhancing the efficiency of Si-based solar cell”**
Y. An, J. Wang
Sun Yat-sen University, Guangzhou, China

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