



Europass Curriculum Vitae

Personal information

First name(s) / Surname(s) **Ruben V. SARGSYAN**
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E-mail sarkisianruben@gmail.com
Nationality Armenian
Date of birth 02nd of August 1986
Gender Male
Marital status Married with one son

Desired employment / Occupational field **Research at the Laboratoire de Physico-Chimie des Matériaux Luminescents (France)**

Work experience

Dates December 2007 – Present
Occupation or position held Researcher in the Laboratory of Crystal Growth of Luminescence Materials

Main activities and responsibilities Research staff within the laboratory performing various operations for the preparation of samples, measurement, testing and analysis of results. Work linked to the field of scintillation materials research and crystal growth with a particular focus on the analysis of optical and structural properties of scintillator materials. A strong experience in the following methods and techniques has been acquired:

- Single crystal growth by Czochralski and vertical Bridgman methods;
- Synthesis of polycrystals by solid state reactions technique;
- Optical quality control of single crystalline samples by polarizing microscope;
- Investigation of optical absorption/transmission and luminescence properties of the obtained samples.
- Calculation of structural parameters of garnet and perovskite type compounds

Name and address of employer Institute for Physical Research of National Academy of Science of Republic of Armenia, 0203, Ashtarak-2, Republic of Armenia

Type of business or sector Research centre in physics and material sciences

Education and training

Dates 2009 - 2012
Title of qualification awarded PhD in optics

Principal subjects/occupational skills covered **"Optical and structural properties of Ce³⁺- and Pr³⁺-containing oxide scintillators"**
 Conditions have been optimized and single crystals of LuAG:Ce, LuAG:Pr, LuAG:Sc,Pr, YAG:Ce and CANB with Ce³⁺, Pr³⁺ and Tb³⁺ ions were grown applying the vertical Bridgman and Czochralski techniques.
 Growth conditions were optimized basing on the estimated Lu_{Al} values and optical quality LuAG:Ce single crystals with high (up to 0.55 at%) concentration of Ce³⁺ ions were made available by the Bridgman method; these crystals provided for a significant improvement of the light yield (25800 photon/MeV; Cs¹³⁷, 662 keV).
 The solubility limit of Sc in solid solution garnets {Lu_{1-x}Sc_x}₃[Al_{1-y}Sc_y]₂(Al)₃O₁₂ and preferences for occupation of octahedral and dodecahedral lattice sites have been experimentally determined (x=0.28, y=0.92); single crystals with concentrations of Sc close to the solubility limit were obtained for the first time.

Name and type of organisation providing education and training Institute for Physical Research of National Academy of Science of Republic of Armenia

Dates 2007 - 2009

Title of qualification awarded MSc in Electronics and Microelectronics

Principal subjects/occupational skills covered **"Research of the structural properties of Ce³⁺-doped LuAP and YAG inorganic scintillators"**
 It has been shown that the luminescence intensity of YAG:Ce due to the 5d¹→4f transition of Ce³⁺ ions significantly increases with the doping concentration. Co-doping with Lu³⁺ ions improves the optical transmission and provides for easier incorporation of Ce³⁺ ions in higher concentrations.
 A method has been developed for calculation of lattice constants of the rare-earth aluminates REAlO₃ (RE=Y, Dy-Lu) which provides for a higher accuracy as compared to earlier reported methods.
 MSc was awarded with the honour.

Name and type of organisation providing education and training Russian Armenian (Slavonic) University, physico-technical department, Armenia

Dates 2007

Title of qualification awarded BSc Electronics and Microelectronics

Principal subjects/occupational skills covered **"Organic ferromagnetics. Doping of phthalocyanines with alkali metals"**
 Single crystals of Zn-phthalocyanine were grown. Potassium doped both polycrystalline and single crystalline samples were prepared. Concentration of the dopant was measured using energy dispersive X-ray microanalysis.
 The samples were studied by EPR method in 77 K and 300 K. In the temperature of liquid nitrogen static Jahn-Teller effect was observed, while in room temperature dynamic Jahn-Teller effect occurs.
 BSc was awarded with the honour.

Name and type of organisation providing education and training Russian Armenian (Slavonic) University, physico-technical department, Armenia

Personal skills and competences

Mother tongue(s) **Armenian**

Other language(s)

Self-assessment
European level ()*

Russian

English

French

Understanding				Speaking				Writing	
Listening		Reading		Spoken interaction		Spoken production			
C2	Proficient User	C2	Proficient User	C2	Proficient User	C2	Proficient User	C2	Proficient User
C2	Proficient User	C2	Proficient User	C2	Proficient User	C2	Proficient User	C2	Proficient User
A1	Independent User	A1	Independent User	A1	Independent User	A1	Independent User	A1	Independent User

(*) [Common European Framework of Reference for Languages](#)

Computer skills and competences Microsoft Office, Internet
 Data analyzing and graphing: Origin Lab
 Programming and Web-design: Joomla CMS, HTML, CSS, C++
 Imaging: Adobe Photoshop

Artistic skills and competences Photography and music

Additional information

- Grant awarded in the framework of the "Graduate Research Support Program-2010" competition of the National Academy of Science of the Republic of Armenia - NAS RA, The National Foundation of Science and Advanced Technologies - NFSAT and the U.S. Civilian Research & Development Foundation - CRDF Global (N° ECSP-10-14).
- Participated in the project "Detectors for X-Ray Imaging" (ISTC A-1306) jointly with A.I. Alikhanyan National Science Laboratory and with the collaboration of ESRF (France), CERN (Switzerland), Agonne National Laboratory (USA), Cornell University (USA) and DESY (Germany).
- Participated in the project "Efficient manipulation of atoms and molecules and applications to nonlinear optics and quantum information processing" (INTAS: 06-1000017-9234).
- Involvement in the international associated laboratory IRMAS strengthening the collaboration between the Institute for Physical Research of National Academy of Science of Republic of Armenia and the French CNRS.
- Participate in the FP7 IPERA project (funded the EC): "Integrating the Institute for Physical Research of the National Academy of Sciences of the Republic of Armenia into ERA".

Scientific Publications

- A.G.Petrosyan, K.L.Ovanesyan, R.V.Sargsyan, G.O.Shirinyan, D.Abler, E.Auffray, P.Lecoq, C.Dujardin, C.Pedrini, "Bridgman growth and site occupation in LuAG:Ce scintillator crystals", J. Crystal Growth, 312, 2010, p. 3136.
- R.Sargsyan, "Optical and structural properties of LuAG:Pr scintillator crystals", Proceedings of SPIE, International Conference on Laser Physics 2010, 7998, 2011, p. 79981K1.
- K.L.Ovanesyan, G.O.Shirinyan, T.I.Butaeva, R.V.Sargsyan, M.V.Derdzian, A.G.Petrosyan, C.Pedrini, C.Dujardin, M.Mkrtchyan, "Obtainment and properties of concentrated YAG:Ce and YAP:Ce crystals", Proceedings of the conference "Laser Physics 2008", publisher "Gitutyun", 2009, p. 79. (in Russian)
- A.G.Petrosyan, K.L.Ovanesyan, G.O.Shirinyan, R.V.Sargsyan, C.Dujardin, C.Pedrini, "Site occupation and solubility limit of Sc in Lu₃Al₅O₁₂", J. Crystal Growth, 338, 2012, p. 143.
- R.Sargsyan, G.Shirinyan, A.Petrosyan, "Empirical formulae for the calculation of structural parameters of REAlO₃ (RE=Y, Dy-Lu) compounds", Proceedings of the conference "Laser Physics 2008", publisher "Gitutyun", 2009, p. 71. (in Russian)
- C.Pedrini, A.Belsky, A.Petrosyan, R.V.Sargsyan, I.Kamenskikh, "Parallel between rare earth trapped exciton and charge transfer in rare earth doped crystals", Abstracts XIV International Feofilov Symposium, 2010, Th-I-34, p. 118.
- C.Pedrini, A.Belsky, K.V.Ivanovskikh, A.G.Petrosyan, R.V.Sargsyan, I.Kamenskikh, "Cerium-, praseodymium- and terbium-trapped excitons in oxides", Chemical Physics Letters, 515, 2011, p. 258.
- A.G.Petrosyan, G.O.Shirinyan, K.L.Ovanesyan, M.V.Derdzian, R.V.Sargsyan, E.Auffray, K.Pauwels, P.Lecoq, C.Dujardin, C.Pedrini, "Bridgman growth and properties of LuAG based scintillators", Program and Abstracts of the 11th International Conference on Inorganic Scintillators and Their Applications, SCINT 2011, O 5.10.
- M.Derdzian, K.Ovanesyan, A.Petrosyan, R.Sargsyan, G.Shirinyan, E.Auffray, E.Dimovasilis, P.Lecoq, K.Pauwels, C.Dujardin, C.Pedrini, "Comparison of LuAG:Pr and LuAG:Pr(Sc,Hf) scintillation crystals grown by the Bridgman method", Programme and Abstracts of International Conference "Laser Physics 2011", P6-14, 2011, p. 96.