

ERKUL KARACAAGLU (PH.D.)



90-539 577 5068 (TURKEY)



ekaracaoglu@kmu.edu.tr

erkaracaoglu@gmail.com

Valide Sultan St
Bulbul Apt. No:56/2
Karaman, 70100 (TURKEY)

EDUCATION

PhD	Selcuk University (Konya, Turkey) Metallurgy and Materials Engineering Dissertation: “ <i>The Investigation of Photoluminescent and Mechanoluminescent Properties of Aluminate-Based Phosphorescence Materials Encapsulated with Atomic Layer Deposition (ALD) Method</i> ” Advisor: Prof. Dr. Mesut Uyaner	2020 (January)
MSc	Anadolu University (Eskisehir, Turkey) Materials Science and Engineering Dissertation: “ <i>The Production and Characterization of Inorganic Based White Phosphorescent Pigments</i> ” Advisor: Prof. Dr. Bekir Karasu	2014
BSc	Anadolu University (Eskisehir, Turkey) Materials Science and Engineering Dissertation: “ <i>The Effect of Fritted Borax Solid Wastes on the Brick Bodies</i> ” Advisor: Prof. Dr. Bekir Karasu	2008

HONORS AND AWARDS

Visiting Research Scholar **August 27, 2018 – July 5, 2019**
Georgia Institute of Technology
School of Materials Science and Engineering (MSE)
Advisor: Prof. Mark D Losego (Losego Research Group)
Being awarded a grant by The Scientific and Technological Research Council of Turkey (TUBITAK)

Selected Articles Published in International Journals

- Öztürk E., Karacaoglu E., The effect of Eu³⁺-doping on the photoluminescent properties of REInO₃ (RE= Er, Sm) type phosphors, *Mater Today Comm* 25:101556 (2020)
- Karacaoglu E., Öztürk E., Uyaner M., Losego M.D., Atomic layer deposition (ALD) of nanoscale coatings on SrAl₂O₄-based phosphor powders to prevent aqueous degradation, *J Am Ceram Soc.* 103:3706–3715 (2020)
- Öztürk E., Karacaoglu E., Kalem V., Photoluminescence and piezoelectric behaviour of Y₂Zr₂O₇ pyrochlore based multifunctional materials and the influence of Eu³⁺ and Sm³⁺, *Luminescence* 35(3):406-411 (2020)
- Öztürk E., Kalem V., Karacaoglu E., Enhancement of Curie temperature and photoluminescent properties of Nd₂Mo₂O₇, Ho₂Mo₂O₇ and Gd₂Mo₂O₇, *Int J Appl Ceram Tec* 17(3):1334-1340 (2020)
- Öztürk E., Karacaoglu E., Uzun E., The effect of ligand-to-Eu³⁺ charge-transfer transitions (LMCT) on the photoluminescence intensity of M₂SiO₄:Eu³⁺ (M=Ca, Zn) type phosphors, *Mater Sci-Poland.* 36(3):509-513 (2018)
- Halefoglu Y.Z., Yüksel M., Derin H., Cand N., Topaksu M., Ozturk E., Karacaoglu E., Preparation and photoluminescence properties of aluminate phosphors produced by combustion synthesis, *Appl Radiat Isotopes.* 142:46–50 (2018)
- Öztürk E., Karacaoglu E., Uzun E., Synthesizing and photoluminescence properties of Eu³⁺-doped germanate and Dy³⁺-doped silicate hosts, *J Lumin.* 204:51-58 (2018)
- Öztürk E., Karacaoglu E., Eu³⁺-and Ho³⁺-doped Ba₃Al₂O₆-and MgAl₂O₄-type phosphors and their photoluminescent properties, *J Therm Anal Calorim.* 131:2261–2265 (2018)
- Öztürk E., Karacaoglu E., Dy³⁺-activated M₂SiO₄ (M = Ba, Mg, Sr)-type phosphors, *B Mater Sci.* 40(1):25-30 (2017)
- Karacaoglu E., Gul M., The Effects of Activator and Co-dopant Concentrations on the Photoluminescence

Properties of $(\text{Ba,Ca})_2\text{SiO}_4$ Compound, *J Aust Ceram Soc.* 53:667–672 (2017)

11. Uzun E., Öztürk E., Kalaycioglu Ozpozan N., **Karacaoglu E.**, Thermoluminescence and photoluminescence properties of Mn^{4+} , $\text{Pr}^{3+,4+}$, Nd^{3+} and Eu^{3+} in $\text{MgAl}_2\text{Si}_2\text{O}_8$, *J Lumin.* 173:73-81 (2016)
12. **Karacaoglu E.**, Karasu B., Effect of activators and calcination on luminescence properties of åkermanite type phosphors, *Indian J Chem A (IJCA)*. 54A:1394-1401 (2015)
13. Öztürk E., **Karacaoglu E.**, Luminescence properties of $\text{M}_2\text{TiO}_4:\text{Eu}^{3+}$, Li^+ (M:Mg, Ca) and $\text{MgAl}_2\text{O}_4:\text{RE}^{3+}$ ($\text{RE}^{3+}:\text{Ho}^{3+}$, Sm^{3+} , and Yb^{3+}), *J Therm Anal Calorim.* 119:1063-1071 (2015)
14. Öztürk E., **Karacaoglu E.**, Investigation of phase formation dependency of luminescence properties of Eu^{3+} in $\text{Mg}_4\text{Al}_2\text{O}_7:\text{Eu}^{3+},\text{Dy}^{3+}$ and $\text{Ca}_4\text{Al}_2\text{O}_7:\text{Eu}^{3+},\text{Dy}^{3+}$ red-emitting phosphors, *J Therm Anal Calorim.* 120:1139-1143 (2015)
15. **Karacaoglu E.**, Karasu B., The Effects of Re-Firing Process under Oxidizing Atmosphere and Temperatures on the Properties of Strontium Aluminate Phosphors, *Mater Res Bull.* 48(10):3702–3706 (2013)
16. Kaya Yesilay S., **Karacaoglu E.**, Karasu B., The Particle Size Influence of Starting Batches on the Phosphorescence Behavior of $\text{Sr}_4\text{Al}_{14}\text{O}_{25}$ Based Bluish-Green Phosphors, *Adv Appl Ceram: Struct Funct Bioceram.* 111(7):393-397 (2012)
17. Kaya Yesilay S., **Karacaoglu E.**, Karasu B. Effect of Al/Sr Ratio on the Luminescence Properties of $\text{SrAl}_2\text{O}_4: \text{Eu}^{2+}, \text{Dy}^{3+}$ Phosphors, *Ceram Int.* 38(5):3701-3706 (2012)
18. Kaya Yesilay S., Karasu B., Kaya G., **Karacaoglu E.**, Influences of Eu^{2+} and Dy^{3+} contents on the properties of long afterglow strontium aluminate phosphors, *Adv Sci Tech.* 62:88-94 (2010)
19. Kaya G., Karasu B., **Karacaoglu E.**, Effects of Fritted Borax Solid Wastes on the Properties of Brick Bodies, *Silicates Industriels.* 74:363-367 (2009)

Selected International Scientific Conferences and Papers Featured Books Printed Papers

- **Karacaoglu E.**, Öztürk E., Uyaner M., The Effect of Al_2O_3 Encapsulation Using Atomic Layer Deposition on the Photoluminescent, Water and Thermostability Properties of SrAl_2O_4 Based Phosphors, *AVS 64th Int. Symposium and Exhibition*, 2017, Tampa, USA.
- **Karacaoglu E.** and Öztürk E., The Photoluminescent Properties of Rare-Earth $\text{Sm}_{1.90}\text{Eu}_{0.10}\text{Zr}_2\text{O}_7$ Zirconate Pyrochlore, *15th Conference & Exhibition of the European Ceramic Society / ECerS2071*, 2017, Budapest, HUNGARY.
- Öztürk E. and **Karacaoglu E.**, Synthesis of Yb^{3+} -Activated $\text{Dy}_2\text{Ti}_2\text{O}_7$ Pyrochlore ($\text{A}_2\text{B}_2\text{O}_7$) Structure And Photoluminescence Properties, *The International Conference on Engineering and Natural Sciences (ICENS)*, 2016, New York, USA.
- **Karacaoglu E.** and Öztürk E., Synthesis and characterization of pyrochlore ($\text{A}_2\text{B}_2\text{O}_7$) structure $\text{Eu}_{1.90}\text{La}_{0.10}\text{Zr}_2\text{O}_7$ phosphor, *4th Int. Conf. and Exhibition on Mat. Sci. & Eng.*, 2015, Orlando, USA.
- **Karacaoglu E.**, Karasu B. and Öztürk E., The Investigations on Luminescence Characteristics and Influence of Doping and Co-doping Different Rare Earth Ions in White Phosphorescence Materials Having Different Luminescent Centers, *13th Int. Ceramics Cong. (CIMTEC 2014)*, Montecatini Terme, ITALY.
- **Karacaoglu E.** and Karasu B., Investigations on Luminescence Characteristics and Influence of Co-doping Different Rare Earth Ions of Bright White Long-Afterglow Phosphorescent Pigments, *IntertechPira's 10th Annual Phosphor Global Summit*, 2012, Arizona, USA.
- **Karacaoglu E.**, Yesilay Kaya S., Karasu B. and Kaya G., The Synthesis of Violet Emitting Long Afterglow Calcium Aluminate Phosphors and Their Luminescence Properties, *12th Conf. and Exhibition of the European Ceramic Society (ECerS)*, 2011, Stockholm, SWEDEN.
- Kaya Yesilay S., Karasu B., Kaya G. and **Karacaoglu E.**, Effects of Firing Temperature and Time on the Luminescence of Phosphors in Strontium Aluminate System Co-doped by Eu_2O_3 and Dy_2O_3 and Prepared by Solid State Reaction Processing, *12th Int. Ceramics Cong. (CIMTEC 2010)*, Montecatini Terme, ITALY.
- Kaya Yesilay S., Karasu B., Kaya G. and **Karacaoglu E.**, Influence of Eu^{2+} and Dy^{3+} Contents on the Properties of Long Afterglow Strontium Aluminate Phosphors, *12th Int. Ceramics Cong. (CIMTEC 2010)*, Montecatini Terme, ITALY.
- Kaya Yeşilay S., Karasu B. and **Karacaoglu E.**, General Review of Application of Phosphorescence Pigments in Ceramic Industry, *1st Int. Ceramic, Glass, Porcelain Enamel, Glaze and Pigment Cong. (SERES 2009)*, Eskisehir, TURKEY.
- Kaya G., Karasu B. and **Karacaoglu E.**, Utilizing of Borax Solid Wastes in Roof Tile and Brick Bodies, *Sohn Int. Symposium on Advanced Processing of Metals and Materials: Principles, Technologies and Industrial Practice*, 2006, San Diego, The USA.

National and International Projects

- *Synthesis and characterization of novel multifunctional smart materials having photoluminescence and piezoelectric properties, Project Scholarship, 18 Months, TUBITAK (The Scientific and Technological Research Council of Turkey) 1001 Project, 2014-2016*
- *The Investigation of Application Areas and Pilot-Scale Productions of Different Afterglow Color Emitting Phosphorescent Powders, Project Engineer (at Fosfortek Company), 12 Months, Anadolu Technology Research Park (ATAP) Co. Project, 2011-2012*
- *The Production and Using of Inorganic Based White Light Emitting Phosphorescent Pigments in Ceramics and Glasses, Project Engineer (at Fosfortek Company), 12 Months, KOSGEB (Republic of Turkey, Small and Medium Enterprises Development Organization) Research-Development, Innovation and Industrial Application Support Programme, 2011-2012*
- *The Production of Long Afterglow Yellowish-Green and Bluish-Green Phosphorescent Pigments and Using in Third Firing (Décor Firing) Wall Tile Glazes and Vetrosa Applications, Project Scholarship (during MSc), 18 Months, TUBITAK (The Scientific and Technological Research Council of Turkey), 2009-2010*

WORK EXPERIENCE

Materials Engineer

2011

Seramdent Dental Ceramics and NanoMaterials Co.

(Eskisehir Technology Development Zone- Anadolu Technopark, Eskisehir, Turkey)

Materials Engineer

2011-2012

FosforTek Phosphor Technologies Co.

(Eskisehir Technology Development Zone- OSB 1st Pyramid, Eskisehir, Turkey)

Research Assistant (Dr.)

2013-cont.

Karamanoglu Mehmetbey University

(Fac. of Engineering- Dep. of Metallurgy and Materials, Karaman, Turkey)