

Dr Fatih Erdem Bařtan

Dr. Research Assistant, Sakarya University

febastian@sakarya.edu.tr

Sakarya University, Engineering Faculty, Department of Metallurgy and
Materials Engineering, Thermal Spray Research and Development
Laboratory, 54187, Esentepe, Sakarya, Turkey, Mobile: +90 532 661 54 06
Profile: Google Scholar, SCOPUS, Orcid, LinkedIn



ACADEMIC EMPLOYMENT

May 2018-	Dr. Research Assistant	Sakarya University , Engineering Faculty, Department of Metallurgy and Materials Engineering
June 2016-June 2017 (1 year)	Visiting Researcher	Institute of Biomaterials, University of Erlangen-Nuremberg , Cauerstrasse 6, 91058 Erlangen, Germany
Apr 2012-May 2018	Research Assistant	Sakarya University , Engineering Faculty, Department of Metallurgy and Materials Engineering

CORE COMPETENCIES AND CV OVERVIEW

Dr. Fatih Erdem Bařtan (born 1986, İstanbul) has been working as a Dr. research assistant at Sakarya University, Engineering Faculty, Metallurgical and Materials Engineering Department from 2012. He is a senior researcher at Thermal Spray Research and Development Laboratory (TESLAB). Dr. Bařtan, materials scientist who has a solid background and publications on producing, modification and characterization of bio-ceramic powders and coatings such as hydroxyapatite and bioglass. Bařtan received BS degree in Metallurgical and Materials Engineering in Kocaeli University (Turkey) in 2009 and received M.Sc degree in the same department in Sakarya University (Turkey) in 2012.

He went to Germany and studied as a visiting researcher at Institute for Biomaterials at the Department of Materials Science and Engineering, University of Erlangen-Nuremberg for 1 year (2016-2017). Dr. Bařtan worked as a researcher in a project, supported by the Republic of Turkey, Ministry of Development, entitled as: "The Increasing Capacity and Modernization of the Orthopaedic Implant Coating Production Facility for In Vivo Applications" He completed a Ph.D. entitled as "Producing and Characterization of Thermal Sprayable Strontium Ion Substituted Hydroxyapatite Powder via Spray Drying" in 2018 in Sakarya University. He is highly experienced in using of laboratory equipments and analyzers. He has been collaborating with prestigious scientists-professors and engineers from the metallurgy and materials science sector.

Research Areas: Producing, modification and characterization of powder materials, spray drying, hydroxyapatite, biomaterials and bio-coatings, thermal spray coatings, electrophoretic deposition.

The core competencies of Dr. Baştan are listed below.

Synthesis and granulation of ceramic powders: Chemical precipitation of synthetic **nano-hydroxyapatite** powders, main inorganic component of bone mineral, for **bio-medical applications** and granulating the powders to micro-spheres via spray drying for thermal spraying applications.

Characterization of materials: Physical, chemical and mechanical characterization of bulk materials, powders and coatings: investigation of the crystal structure of the materials by X-Ray diffraction (**XRD**), visualization of the materials' microstructure with scanning electron microscope (**SEM**), thermal analysis of materials by thermo-gravimetric analyzes and differential thermal analyzes (**TG-DTA**), differential scanning calorimetry (**DSC**), chemical structure analyzes by fourier transform infrared spectroscopy (**FTIR**), investigation of the mechanical properties of the materials with ultimate testing machine, hardness tester.

Coating production: Pure bio-ceramic and bio-polymer/bio-ceramic coating fabrication with **plasma spraying**, high velocity oxy-fuel (**HVOF**) and electrophoretic deposition (**EPD**) for bio-medical applications and investigation of the physical, chemical properties of the coatings.

The aforementioned research activities concluded in publication of **15 articles** in good/excellent journals from SCI cited more than **130 times** in Google Scholar (H-index of 8 on Scholar), **5 proceedings** presented in international conferences in English, **2 projects** funded by: Republic of Turkey, Ministry of Science, Industry and Technology and Ministry of Development.

EDUCATION

2012-2018-	Ph.D.	Sakarya University , Institute of Natural Science, Department of Metallurgy and Materials Engineering
2010-2012	M.Sc.	Sakarya University , Institute of Natural Science, Department of Metallurgy and Materials Engineering
2005-2009	B.Sc.	Kocaeli University , Engineering Faculty, Department of Metallurgy and Materials Engineering

SCIENTIFIC PUBLICATIONS (SCI)

[1] **F.E. Bastan**, G. Erdogan, F. Ustel, Role of strontium substitution in spray drying of hydroxyapatite: A comparative study on physical properties, Int. J. Appl. Ceram. Technol. (**In press**). <https://doi.org/10.1111/ijac.13422>.

- [2] A. Pawlik, M.A.U. Rehman, Q. Nawaz, **F.E. Bastan**, G.D. Sulka, A.R. Boccaccini, Fabrication and characterization of electrophoretically deposited chitosan-hydroxyapatite composite coatings on anodic titanium dioxide layers, *Electrochimica Acta*. 307 (2019) 465–473. <https://doi.org/10.1016/j.electacta.2019.03.195>.
- [3] E. Avcu, **F.E. Baştan**, H.Z. Abdullah, M.A.U. Rehman, Y.Y. Avcu, A.R. Boccaccini, Electrophoretic deposition of chitosan-based composite coatings for biomedical applications: A review, *Prog. Mater. Sci.* 103 (2019) 69–108. <https://doi.org/10.1016/j.pmatsci.2019.01.001>.
- [4] M.A. Ur Rehman, **F.E. Bastan**, Q. Nawaz, W.H. Goldmann, M. Maqbool, S. Virtanen, A.R. Boccaccini, Electrophoretic deposition of lawsone loaded bioactive glass (BG)/chitosan composite on polyetheretherketone (PEEK)/BG layers as antibacterial and bioactive coating, *J. Biomed. Mater. Res. A*. 106 (2018) 3111–3122. <https://doi.org/10.1002/jbm.a.36506>.
- [5] **F.E. Baştan**, M. Atiq Ur Rehman, Y.Y. Avcu, E. Avcu, F. Üstel, A.R. Boccaccini, Electrophoretic co-deposition of PEEK-hydroxyapatite composite coatings for biomedical applications, *Colloids Surf. B Biointerfaces*. 169 (2018) 176–182. <https://doi.org/10.1016/j.colsurfb.2018.05.005>.
- [6] E. Avcu, Y. Yıldırım Avcu, **F.E. Baştan**, M.A.U. Rehman, F. Üstel, A.R. Boccaccini, Tailoring the surface characteristics of electrophoretically deposited chitosan-based bioactive glass composite coatings on titanium implants via grit blasting, *Prog. Org. Coat.* 123 (2018) 362–373. <https://doi.org/10.1016/j.porgcoat.2018.07.021>.
- [7] B. Yüksel, G. Erdogan, **F.E. Bastan**, R.A. Yıldız, Corrosion resistance of as-plated and heat-treated electroless duplex Ni-P/Ni-B-W coatings, *Mater. Tehnol.* 51 (2017) 837–842. <https://doi.org/10.17222/mit.2016.304>.
- [8] M.A. Ur Rehman, S. Ferraris, W.H. Goldmann, S. Perero, **F.E. Bastan**, Q. Nawaz, G.G. di Confiengo, M. Ferraris, A.R. Boccaccini, Antibacterial and Bioactive Coatings Based on Radio Frequency Co-Sputtering of Silver Nanocluster-Silica Coatings on PEEK/Bioactive Glass Layers Obtained by Electrophoretic Deposition, *ACS Appl. Mater. Interfaces*. 9 (2017) 32489–32497. <https://doi.org/10.1021/acsami.7b08646>.
- [9] **F.E. Bastan**, G. Erdogan, T. Moskalewicz, F. Ustel, Spray drying of hydroxyapatite powders: The effect of spray drying parameters and heat treatment on the particle size and morphology, *J. Alloys Compd.* 724 (2017) 586–596. <https://doi.org/10.1016/j.jallcom.2017.07.116>.
- [10] M. Atiq Ur Rehman, **F.E. Bastan**, B. Haider, A.R. Boccaccini, Electrophoretic deposition of PEEK/bioactive glass composite coatings for orthopedic implants: A design of experiments (DoE) study, *Mater. Des.* 130 (2017) 223–230. <https://doi.org/10.1016/j.matdes.2017.05.045>.
- [11] Y.Y. Özbek, **F.E. Baştan**, F. Üstel, Synthesis and characterization of strontium-doped hydroxyapatite for biomedical applications, *J. Therm. Anal. Calorim.* 125 (2016) 745–750. <https://doi.org/10.1007/s10973-016-5607-3>.
- [12] Y.Y. Özbek, **F.E. Baştan**, N. Canikoğlu, U. Özşarç, The experimental study of titanium-ions into hydroxyapatite by chemical precipitation, *J. Therm. Anal. Calorim.* 125 (2016) 651–658. <https://doi.org/10.1007/s10973-016-5335-8>.
- [13] **F.E. Bastan**, G. Ağta, Y.Y. Ozbek, F. Ustel, The effect of mg supplement on hydroxyapatite produced by chemical precipitation, *Acta Phys. Pol. A*. 125 (2014) 391–392. <https://doi.org/10.12693/APhysPolA.125.391>.

- [14] **F.E. Baştan**, Y.Y. Özbek, Producing antibacterial silver-doped hydroxyapatite powders with chemical precipitation and reshaping in a spray dryer, Mater. Tehnol. 47 (2013) 431–434.
- [15] **F.E. Baştan**, E. Demiralp, Y.Y. Özbek, F. Üstel, The effect of binder on chemically precipitated hydroxyapatite during spray drying, Mater. Tehnol. 47 (2013) 303–306.

PROJECT/RESEARCH EXPERIENCE

Researcher 2016-2018	Project Title: The Increasing Capacity and Modernization of the Orthopaedic Implant Coating Production Facility for In Vivo Applications Supervisor : Prof. Dr. Fatih Üstel Project Sponsor: Republic of Turkey, Ministry of Development
Visiting Researcher 2016 – July 2017	Friedrich-Alexander University, Institute for Biomaterials, Dept. of Mat. Sci. and Eng. Erlangen - Nuremberg, Germany Project Title: Electrophoretic Deposition of hydroxyapatite/PEEK composite coatings and In-vitro cell bioactivity of high velocity oxy-fuel (HVOF) sprayed strontium substituted hydroxyapatite coatings Supervisor : Prof. Aldo R. Boccacini Project Sponsor: Sakarya University
Assistant 2013-2015	Project Title : Düşük Basıncılı Döküm Kalıpları İçin Poteyaj Uygulamasına Alternatif Termal Sprey Yöntemleri ile Termal Bariyer Kaplama Uygulaması Supervisor : Assistant Prof. Dr. Ekrem Altuncu Project Sponsor: Republic of Turkey, Ministry of Science, Industry and Technology Project Partner: CMS Jant ve Makina Sanayi A.Ş.

SCHOLARSHIPS& AWARDS

Research and Scholarship Award: Sakarya University, Office of Rectorate, Sakarya/TURKEY
June 2016 – July 2017

INTERNATIONAL PROCEEDINGS

- [1] M.A.U. Rehman, F.E. Bastan, Q. Nawaz, A.R. Boccaccini, Electrophoretic Deposition of Lawsone Loaded Nanoscale Silicate Glass /Chitosan Composite on PEEK/BG Layers, ECS Trans. 82 (2018) 45–50.
<https://doi.org/10.1149/08201.0045ecst>.

- [2] F.E. Bařtan, F. Üstel, THE EFFECT OF SPRAY DRYING PARAMETERS ON HYDROXYAPATITE POWDERS, in: 16th International Materials Symposium IMSP'2016, 2016.
- [3] F.E. Bastan, O. Karaarslan, G. Erdogan, F. Ustel, Investigation of bond strength of spray dried hydroxyapatite-wollastonite composite powder after plasma spray, Adv. Struct. Mater. 61 (2016) 79–86. https://doi.org/10.1007/978-981-10-1082-8_8.
- [4] A. Karabulut, F.E. Bařtan, G. Erdoęan, F. Üstel, Heat treatment's effects on hydroxyapatite powders in water vapor and air atmosphere, AIP Conf. Proc. 1653 (2015) 020053. <https://doi.org/10.1063/1.4914244>.
- [5] F.E. Bařtan, G. Aętař, Y. Yaralı Özbek, F. Üstel, Fabrication of Hollow Hydroxyapatite Microspheres by Spray Drying, in: 16th International Materials Symposium IMSP'2016, 2013.
- [6] F.E. Bařtan, Y. Yaralı Özbek, PRODUCING HYDROXYAPATITE POWDER AND DETERMINING OPTIMAL PARAMETERS FOR SPRAY DRYING, in: 14th International Materials Symposium (IMSP'2012), 2012.

MISCELLANEOUS INFORMATION_____

Languages: **English** (excellent, full academic competency), **German** (beginner), **Turkish** (native speaker)

Date and place of birth: Oct 2th of 1986; İstanbul, Turkey

Residency: Turkish citizen

REFERENCES_____

Note: Reference letters will be provided upon requires if the candidate is shortlisted.

Prof. Aldo R. Boccaccini

Full professor, Head of the Institute, Institute for Biomaterials, Department of Materials Science and Engineering, University of Erlangen-Nuremberg, Germany. Cauerstrasse 6, 91058 Erlangen, Germany

Contact: <http://www.biomat.techfak.uni-erlangen.org/staff/biomaterials/aldo-r-boccaccini.shtml>, aldo.boccaccini@fau.de, +49 (0)9131 85-28601.

Prof. Fatih Üstel

Full professor, Head of Thermal Spray Research and Development Laboratory, Metallurgy and Materials Engineering, Engineering Faculty, Sakarya University, Turkey

Contact: <http://teslab.sakarya.edu.tr/tr/icerik/13240/62095/fatih-ustel>, ustel@sakarya.edu.tr