

## Ricardo Donate González

Integrated and Advanced  
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### Fields of research

ADDITIVE MANUFACTURING  
BIOMATERIALS  
CHARACTERIZATION OF POLYMERS  
CHEMICAL INSTRUMENTATION  
MECHANICAL CHARACTERIZATION  
OF SCAFFOLDS

### LANGUAGES

SPANISH



ENGLISH



## EXPERIENCE

### Researcher in project (July 2021 – present)

Integrated and Advanced Manufacturing research group at ULPGC.  
Research project: New EDM electrodes manufactured with electrically  
conductive materials by AM (EDM-Additive)

### PhD student (July 2017 – June 2021)

PhD Grant of the Government of the Canary Islands at the Process  
Engineering Department.

### Research project assistant (March 2017 – June 2017)

Integrated and Advanced Manufacturing research group at ULPGC.  
Research project: BAMOS - Biomaterials and Additive Manufacturing:  
Osteochondral Scaffold innovation applied to osteoarthritis.

### Research internship (September 2016 – February 2017)

Integrated and Advanced Manufacturing research group at ULPGC.

### Research internship (August 2015 – May 2016)

Agro-alimentary Lab of Cabildo de Gran Canaria.

### Research internship (November 2013 – June 2014)

Integrated and Advanced Manufacturing research group at ULPGC.

## EDUCATION

### PhD (2016-2021)

Doctorate program: Chemical, Mechanical and Manufacturing  
Engineering

PhD thesis: Experimental study of different combinations of biomaterials  
with polylactic acid matrix in additive manufacturing with biomedical  
purposes.

Cum laude and International thesis mentions.

### Chemical Engineering (2009-2015)

Industrial and Civil Engineering School, ULPGC

End of degree Award 2014-2015.

## PARTICIPATION IN RESEARCH PROJECTS

**Evaluación de la degradación de propiedades mecánicas a lo largo del tiempo en materiales poliméricos biodegradables (ULPGC2018-16) obtenidos mediante Fabricación Aditiva.** (01/01/2020 - 31/12/2021)

**New EDM electrodes manufactured with electrically conductive materials by AM (EDM-Additive).** (01/02/2019 - 31/12/2021)

**Mejora de la biofuncionalidad de scaffolds poliméricos obtenidos por fabricación aditiva - BioAM (DPI2017-88465-R).** (01/01/2018 - 31/12/2020)

**Biomaterials and Additive Manufacturing: Osteochondral Scaffold innovation applied to osteoarthritis — BAMOS (H2020-MSCA-RISE-2016-734156).** (01/01/2017 - 30/06/2022)

**Mejora de la osteointegración de estructuras porosas de titanio mediante la optimización del diseño y modificación superficial con recubrimiento polimérico (DPI2015-71073-R).** (01/01/2016 - 31/12/2018)

## RESEARCH PAPERS AND BOOK CHAPTERS

Ricardo Donate González; María Elena Alemán Domínguez; Mario Monzón Verona. **On the Effectiveness of Oxygen Plasma and Alkali Surface Treatments to Modify the Properties of Polylactic Acid Scaffolds.** *Polymers*. 13-10, pp. 1643. MDPI, 18/05/2021.

Jacob Abdelfatah; Rubén Paz; María Elena Alemán Domínguez; Mario Monzón; Ricardo Donate; Gabriel Winter. **Experimental Analysis of the Enzymatic Degradation of Polycaprolactone: Microcrystalline Cellulose Composites and Numerical Method for the Prediction of the Degraded Geometry.** *Materials*. 14 - 9, pp. 2460. MDPI, 2021.

Ricardo Donate González; Mario Domingo Monzón Verona; María Elena Alemán Domínguez. **Additive manufacturing of PLA-based scaffolds intended for bone regeneration and strategies to improve their biological properties.** *e-Polymers*. 20, pp. 571 - 599. De Gruyter, 2020.

Ricardo Donate González, Mario Monzón Verona; María Elena Alemán Domínguez; Zaida Ortega García. **Enzymatic degradation study of PLA-based composite scaffolds.** *REVIEWS ON ADVANCED MATERIALS SCIENCE*. 59 - 1, pp. 170 - 175. De Gruyter, 2020.

Ricardo Donate González; María Elena Alemán Domínguez; Mario Monzón Verona; Jianshu Yu; Francisco Rodríguez Esparragón; Chaozong Liu. **Evaluation of Aloe Vera Coated Polylactic Acid Scaffolds for Bone Tissue Engineering.** *Applied Sciences*. 10 - 7, MDPI, 2020.

Ricardo Donate González; Mario Domingo Monzón Verona; Zaida Cristina Ortega Medina; Ling Wang; Viviana Pinto Ribeiro; Jesús David Pestana Guillén; Joaquim Miguel Antunes Correia de Oliveira; Rui Luis Reis. **Comparison between calcium carbonate and  $\beta$ -tricalcium phosphate as additives of 3D printed scaffolds with polylactic acid matrix.** *Journal of Tissue Engineering and Regenerative Medicine*. Wiley, 2019.

Mario Monzón; Chaozong Liu; Sara Ajami; Miguel Oliveira; Ricardo Donate; Viviana Ribeiro; Rui L. Reis. **Functionally graded additive manufacturing to achieve functionality specifications of osteochondral scaffolds.** *Bio-Design and Manufacturing*. Springer, 2018.

Zaida Cristina Ortega Medina; María Elena Alemán Domínguez; Ricardo Donate González. **Nanofibers and Microfibers for Osteochondral Tissue Engineering**. *Osteochondral Tissue Engineering*. 1058, pp. 97 - 123. Springer, 2018. ISSN 00652598, ISBN 978-3-319-76710-9

## CONFERENCE AND CONGRESS PRESENTATIONS

Ricardo Donate González. **3D printed PLA-based scaffolds with improved biofunctionality for Bone Tissue Engineering applications**. AUTUMN WEBINAR BAMOS 2020. 15/10/2020. Universidad de Las Palmas de Gran Canaria (online).

Ricardo Donate González; Mario Domingo Monzón Verona; María Elena Alemán Domínguez; Francisco Javier Rodríguez Esparragón; Jianshu Yu; Chaozong Liu; Viviana Ribeiro; Joaquim Miguel Oliveira; Rui Luis Reis. **Different strategies to improve cell bioactivity on PLA-based scaffolds**. The 3rd Workshop of BAMOS project during TERM STEM 2019. 06/11/2019. Braga, Portugal.

Ricardo Donate González; Ling Wang; María Elena Alemán Domínguez; Rubén Paz Hernández; Mario Domingo Monzón Verona. **The effect of the manufacturing process on the properties of freeze-dried cellulose reinforced alginate-based scaffolds**. The 2nd International Conference on Biomaterials, Bio-Design and Manufacturing. 04/09/2019. Tianjin, China.

María Elena Alemán Domínguez; Zaida Cristina Ortega Medina; Antonio Nizardo Benítez Vega; Mario Domingo Monzón Verona; Ricardo Donate González; Ling Wang. **Effect of operating conditions on the surface properties of plasma treated polycaprolatone surfaces**. *Materials & Nanomaterials (M&Ns-19)*. 17/07/2019. Paris, France.

Ricardo Donate González; Mario Domingo Monzón Verona; María Elena Alemán Domínguez; Zaida Cristina Ortega Medina. **Enzymatic degradation study of PLA-based composite scaffolds**. *Materials & Nanomaterials (M&Ns-19)*. 17/07/2019. Paris, France.

Ricardo Donate González; Mario Domingo Monzón Verona; Zaida Cristina Ortega Medina; Ling Wang. **Evaluation of different combinations of biomaterials for bone regeneration**. International Conference on Biomaterials, Bio-Design and Manufacturing. 26/08/2018. Hangzhou, China.