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Anayancy Osorio-Madrazo

Professor Anayancy Osorio Madrazo is a scientist specialized in polymer biomaterials, materials science, biofabrication, and organ printing. She obtained her Diploma/BSc. in Chemistry from the University of Havana and University of Las Villas, Cuba, in 2001, followed by an MSc. in Materials Science and Engineering from the University of Havana in 2003. She began her academic career as an associate researcher at the Biomaterials Center of the University of Havana and as an instructor at the Faculty of Chemistry and Pharmacy, University of Las Villas.

From 2004 to 2009, she completed her PhD in Polymer Materials and Composites at the University Claude Bernard Lyon 1 and UMR/CNRS 5223 in France. She subsequently conducted postdoctoral research at the Max Planck Institute of Colloids and Interfaces in Germany, where she later became an independent investigator. Between 2011 and 2022, she held research leadership and teaching positions at the University of Freiburg, including Research Group Leader, Lecturer, and Independent Junior Research Group Leader with the right to supervise doctoral theses, equivalent to an Associate Professor position.

In 2023, Osorio Madrazo became Head of the Department of Polymer Biomaterials at Friedrich Schiller University Jena. Since 2024, she has been Head of the Department of Organ Printing at the *University of Bayreuth*, Faculty of Engineering Sciences. Since 2011, she has also been actively involved in university teaching in Germany, developing and teaching courses at Bachelor's and Master's levels in chemistry, polymer processing, bioinspired functional materials, materials science, and biofabrication.

Her scientific career has been recognized through several prestigious distinctions, including an EU Alpha II PhD Scholarship, a Max Planck Society Fellowship for Independent Investigators, the Margarete von Wrangell Grant, an invited fellowship at Harvard Medical School, and the DFG Emmy Noether Junior Research Group Grant of €1.9 million. She has also held invited research and professorial positions in France and Italy and served on research and doctoral examination committees internationally.

Osorio Madrazo has extensive experience in the supervision and mentoring of early-career researchers. Since 2017, she has supervised eight PhD theses, 15 Master's theses, three Bachelor's theses, and six postdoctoral researchers, in addition to hosting numerous advanced laboratory internships. She has served as reviewer, examiner, and president of 15 doctoral defense committees across Germany, France, the United Kingdom, and Spain. Since 2023, she has also served as Secretary General of the European Chitin Society (EUCHIS).





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Talk: Chitosan 3D-printing

This lecture aims to describe and exemplify practical biofabrication approaches used in the development of 3D constructs based on chitosan which aims to mimic the native microenvironment of tissues and cells through additive manufacturing methods like 3D (bio)printing. Chitosan (CHI), a biopolymer with attractive biocompatibility, biodegradability and bioactive properties can be used to obtain viscous systems called (bio)inks, which rheological properties are assessed for extrudability and printability to achieve chitosan-based 3D constructs of high resolution, mechanical stability and possibly spatial resolution of cells and biological compounds, these latter in the context of tissue engineering. Free-standing 3D hydrogel structures of combined relevant biomaterials like chitosan and appropriate mechanical strength can be produced, which scaffold microstructure with interconnected pores allows for cell adhesion, migration, proliferation, and 3D cell growth. 3D (bio)printed chitosan biomaterials are promising for the successful translation into the clinics of tissue engineering functional tissues and organs with bioactivity, biocompatibility, and tunable biodegradability for biomedical applications.

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