



JoinTECH
by Kyoto Institute of Technology



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**Biomaterials
Engineering
Laboratory**

JoinTECH-Online

Sustainable Strategies in Biomaterials Engineering

Date/Time: 29 August 2025, JST 10am-12pm, CEST 3am-5am

Location: Kyoto Institute of Technology, Bldg.15, 2F, N205

日時: 令和7年8月29日(金) 10:00 - 12:00

場所: 京都工芸繊維大学 15号館 2F N205



[Zoom meeting available](#)
[オンライン視聴も歓迎します](#)

ABSTRACT: The push for sustainable solutions in materials science has extended into the biomedical field, where researchers are exploring new strategies to minimize environmental impact without compromising performance. This presentation clarifies the operational definitions of sustainable development, biomaterials, and biocompatibility and establishes a practical framework in which choices regarding process, structure, and properties are linked to each other. Seminar will present a selection of innovative approaches to sustainable biomaterials design, including the use of bio-based materials and green chemistry processes.

SHORT BIO: Assistant professor in the field of Materials Science and Technology, he deals with the study and development of surface treatments applied to materials for use in the biomedical field. After obtaining a Master's degree in Process and Materials Engineering, he did his PhD in Materials Chemistry at Kyoto Institute of Technology with a thesis entitled "Innovative approaches to biomaterials' technology through systematic spectroscopic analyses". During his study period abroad, he worked on the study of surface chemistry and functionalization of materials used in prosthetics. He exploited the chemistry of oxide and non-oxide ceramics. This research activity, in collaboration with the Kyoto Prefectural University of Medicine, Osaka University, Amedica Co. and Shinsei Co. was divided into two main strands: the first concerned the degradation phenomena of biocompatible oxide ceramic used in orthopedic applications, while the second focused on modulating the surface chemistry of non-oxide ceramics to stimulate osteoinductive activity and at the same time reduce bacterial proliferation on these surfaces. Currently working at the Polytechnic Department of Engineering and Architecture of the University of Udine, he works on evaluating how surface treatments and coatings can influence the biocompatibility, antibacterial properties and corrosion rate of resorbable and non-resorbable metallic materials. Author and co-author of several publications in international journals and referee for some of them, speaker at national and international conferences and scientific meetings.