

## **The importance of biopolymers' characterization to understand the performance of bio-based products**

**Presenter:**

**Koro de la Caba**

*University of the Basque Country*

**Date and time:**

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Time: 14:00-14:40

**Location:** KFKI Campus, Seminar room, Bldg 21



**Abstract:**

The research work of BIOMAT group is focused on various aspects of the science and technology of materials, including i) the valorization of bio-based waste to extract proteins, polysaccharides, and bioactives; ii) the modification of biopolymers to tailor their properties; iii) the manufacture of bio-based products through sustainable and competitive processes; and iv) the characterization of the final products to assess their suitability for applications in very different sectors, such as tissue engineering or water remediation, among others. In particular, in the frame of SELFAQUASENS project, BIOMAT group works on the design of bio-based membranes to trap and sense pollutants (heavy metals) and critical elements (rare earth elements) from water. This requires the manufacture of porous membranes able to trap cationic, neutral, and anionic species through a combination of absorption mechanisms. In this context, the development of polymeric composites requires a strategy that considers the design of three-dimensional composites, featuring interconnected micro- to macroporous structures that exhibit, at the same time, mechanical robustness. This approach highlights the importance of physicochemical and morphological characterization (FTIR, XRD, SEM), as well as advanced characterization (SAXS, WAXS, SANS), to relate the material structure to its performance.

Website: <https://www.ehu.eus/en/web/biomas/home>

e-mail: [koro.delacaba@ehu.eus](mailto:koro.delacaba@ehu.eus)