

# LMS Seminar

**Bone mechanobiology: toward new tools to learn more**

Rémy Gauthier

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**Date, time, and venue**

March 19, 2026 (2 – 3 pm), Amphithéâtre Pole Mecanique

## Abstract

Our bones have a self-regeneration ability. Damaged bone areas are identified and remodeled with a new matrix. To better understand this mechanism and hence develop new biomaterials for bone regeneration, several models are under development. While animal modeling remains a necessary step during biomaterial development, it raises ethical issues and will be limited in the future. Developing numerical and experimental models of bone remodeling as alternatives to animal testing thus becomes urgent. In this presentation, I will provide the methodologies we follow to answer these questions, coming from the accurate characterization of tissue we are investigating to the development of original tools that may provide further insight on the tissue biomechanical and mechanobiological behavior in complex conditions.

## About the speaker

Rémy Gauthier graduated from the INSA de Lyon with a masters in materials science in 2014 and defended his PhD at Université Claude Bernard Lyon 1 in 2017. His PhD, supervised by David Mitton, Françoise Peyrin, and Hélène Follet, was on the investigation of crack propagation mechanisms in human cortical bone. Since then, his work has always been focused on bone biomechanics to better understand bone fracture and bone regeneration. He joined the CNRS in 2021 (section 30, biomedical engineering) in the MatéIS laboratory where he still works on the development of tools to better understand bone behaviour in complex biomechanical and biological conditions.

